

AMERICAN GAS ASSOCIATION

Monthly



DECEMBER
1960

LOOK WHAT GAS IS DOING NOW!

New oven control
on this CALORIC holds
dinner table-ready
for hours!

NEW ANSWER TO LATE MEALS! Keep the whole dinner table-hot without over-cooking, with new 140° oven setting. Not just a roast (though rare roast beef *stays* rare)—but casseroles, vegetables, fish or even pastry!



Caloric



Automatic Meat Thermometer shuts oven off when roast is ready!

Automatic Rotisserie does the turning and basting for you!

Automatic Burner-with-a-Brain* adjusts so food won't burn, boil over!


SEE HOW MODERN! This Caloric shows you how modern a Gas range is—how helpful, how automatic. It's the fastest, cleanest, coolest to cook with because it's Gas. And only Gas has the basic qualities needed for great cooking—instant response, cool efficiency, controllability—plus economy. Only Gas brings you ranges built to Gold Star standards—see them, at your Gas company or dealer's—see what modern ranges can really do!



AMERICAN GAS ASSOCIATION



Everything's automatic on a range that's won this Gold Star award!

Only **GAS**  does so much more...for so much less!

*A.G.A. Mark © Am. Gas Assoc. Inc.

• This advertisement appeared in GOOD HOUSEKEEPING, Oct. 1960



Chet Stackpole, Julia Meade and Les Potter meet before A. G. A.'s gaslite to wish all a happy Yule

CHRISTMAS being the season of giving, it warms our editorial hearts to offer a couple of stories this month which to our minds well exemplify the Yuletide spirit . . . on page 4 you'll find the story of Good Samaritan Village . . . here it isn't children, but the old folks who are the center of attention . . . and of course, the work has been strictly a non-seasonal affair . . . but we think this story will give you a warmer glow than any holiday hot toddy can do . . . The article also sets some sort of new high mark in modesty, for a public relations type release. . . . Mr. James E. Baker, of Locke Stove Company, who sent it in, hardly mentions his own company's part . . . and the correspondence indicates that Kansas-Nebraska Natural Gas Company played a much larger role than they are publicly owning up to . . . so here's a public pat on the back to both companies for a job worth doing, well done. . . . On page 17 is the story of Minneapolis Gas Company's program to encourage young architects. . . . We find it hard to think of a more praiseworthy type of public relations project than this, or one more likely to have beneficial results for the students, for the gas company, and for the community for a long time to come . . . and the heartening thing is that the actual financial outlay for such a program need not be large . . . proving that you don't have to be rich to be a Santa Claus.

JAMES M. BEALL
DIRECTOR, PUBLIC INFORMATION
BERNARD KAAPCKE
EDITOR
RICHARD F. MULLIGAN
ART SUPERVISOR
SHARON HURLEY
NEWS EDITOR

EDITORIAL OFFICES:
AMERICAN GAS ASSOCIATION
420 LEXINGTON AVE., NEW YORK 17, N.Y.

CONTENTS FOR DECEMBER 1960

FEATURES

NEW BUILDINGS ADD TO MODERN IMAGE OF GAS INDUSTRY . . .	2
A GAS COMPANY TURNS GOOD SAMARITAN	4
EDITORS GET 'INSIDE' ON WESTERN LIVING	6
GAS KITCHENS SEEN AT SHOWS	8
GAS INDUSTRY HAS ITS OWN COLLEGE AT IGT—by Dr. Rex T. Ellington	10
GAS GOES TO THE FAIR	12
JET ENGINE POWERS GAS COMPRESSOR	15
PRIZES PROMOTE GAS PRESTIGE	17
GASLITE DAY SETS 529 LAMPS AGLOW	19
'CARNY' PITCH SELLS GAS FOR ARKLA	21

SECTIONS

THE ELECTRONIC MACHINE AND YOU—by Martin T. Hering (Accounting)	23
SECTION COMMITTEES REORGANIZED (General Management) . . .	25
METALS TREATING SYMPOSIUM HAILED (Industrial and Commercial)	27
25,000 SEE EXHIBITS AT METAL SHOW (Industrial and Commercial) .	29
2ND KITCHEN PLANNING SEMINAR HELD (Industrial and Commercial)	30
SAFETY IN PIPELINE OPERATIONS—by Norman Mork (Operating) .	31
INDUSTRY TO SPONSOR WOMEN'S CONGRESS (Residential) . . .	33

DEPARTMENTS

INDUSTRIAL RELATIONS ROUNDTABLE	14
MEET YOUR ASSOCIATION STAFF	16
FACTS AND FIGURES	18
INDUSTRY NEWS	41
HIGHLIGHTS OF CASES BEFORE FPC	46
PERSONAL AND OTHERWISE	48
OBITUARY	51
CONVENTION CALENDAR	51
PERSONNEL SERVICE	52

INDEXED BY APPLIED SCIENCE AND TECHNOLOGY INDEX

VOL. 42

NO. 12

• The "American Gas Association Monthly" is published 11 times a year, monthly, except in July and August, when there is a bimonthly issue, by American Gas Association, Inc., 420 Lexington Avenue, New York 17, N. Y. The publication office is located at 73 Main Street, Brattleboro, Vt. Address communications to 420 Lexington Avenue, New York 17, N. Y., including manuscript copy for publication. The Association is not responsible for statements and opinions contained in papers and discussions appearing herein. Cable addresses: American Gas Association, "Amerigas, New York"; American Gas Association Laboratories, "Amerigaslab, Cleveland." Annual subscription: \$5 domestic (United States and Canada) and \$6 foreign. Second class mail privileges authorized at Brattleboro, Vt.

POSTMASTER: Send Form 3579 to American Gas Association
420 Lexington Ave., New York 17, New York.



Handsome new NI Lake District headquarters, seen from street



Northern Illinois' new Northern Division headquarters building



Architect's conception of NI's new DuPage headquarters-to-be



New buildings add to modern image of gas industry

Striking monuments to gas industry progress are the many new gas company buildings going up across the country. Among the more recent are the buildings shown on these pages. These latest contributions to architectural public relations are by Northern Illinois Gas Company and Public Service Company of Colorado.

Colorado's new 12-story headquarters is now being erected at the corner of 15th and Welton streets in downtown Denver.

Being built at a cost of \$9 million, the structure will incorporate office building design features especially tailored to company needs.

A display area on the main floor will be equipped with a flexible system of high intensity lighting that will allow displays to be shown with equal effectiveness regardless of their location on the floor. General lighting throughout the building is designed for each specific operation and office areas will combine air conditioning and lighting from the same fixture. Other areas will use luminous panels for lighting.

The second floor of the building is a specially designed pedestal floor for electronic data processing equipment. The twelfth floor, planned for employee activities, will include offices of the Employee Education Department, a fully equipped auditorium, a library, a lounge, a lunchroom and conference rooms.

The exterior of the building will be faced with sunset red granite, trimmed with stainless steel.

At night, special lighting of the mechanical equipment housing on top of the building will give the new structure a distinctive appearance with a "halo of light."

The new Northern Illinois Gas Company district headquarters buildings reflect the company's current growth "by leaps and bounds."

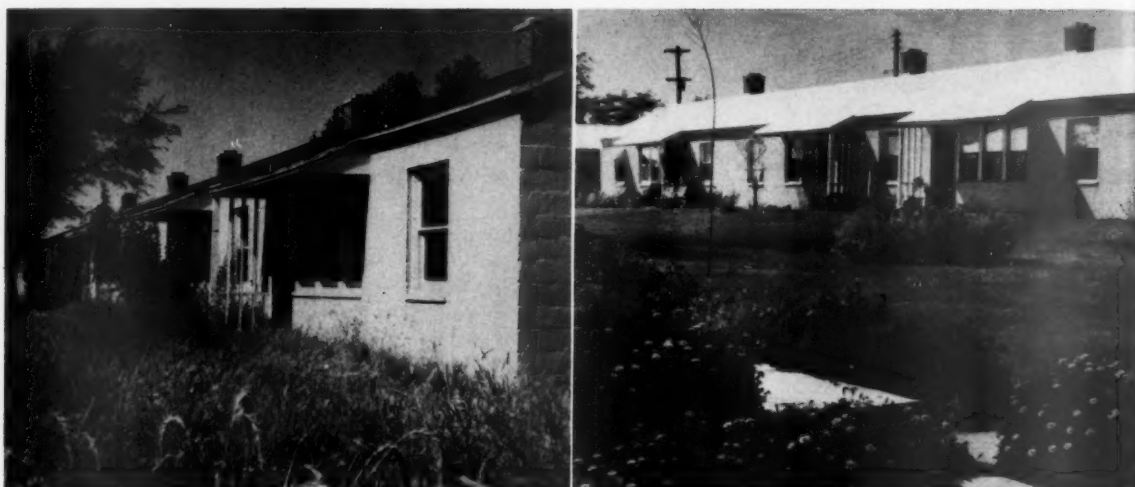
The NI Lake District offices, located in Crystal Lake, represent an advanced type of architectural design. The Northern Division building, in Glenview, has been cited by local civic leaders for its attractive blending with surrounding residences.

The new DuPage County headquarters will be built near Glen Ellyn, 21 miles west of downtown Chicago.

Artist's conception of new Public Service Company of Colorado headquarters building started in August



Street view of Lake District building shows gleaming entrance, up-to-date design, beauty of landscaping



Good Samaritan Village, before and after. Left, wartime housing project fallen into weed-grown disrepair, before transformation into attractive, comfortable, low-cost homes for aged, right

A gas company turns Good Samaritan

On the outskirts of Hastings, Nebraska, a 50-acre tract containing one-story concrete block buildings left over from World War II, has been transformed, almost miraculously, into a retirement community for people of advanced age.

More than 500 men and women, ranging in age from 65 to 99, including numerous married couples, have found a restful and secure "Shangri-La" for their sunset years in Good Samaritan Village.

Good Samaritan Village provides clean, well equipped, one-to-three bedroom apartments at low rentals, plus personal and medical care, for persons of advanced age with limited income. It is sponsored by the Good Samaritan Society, an organization of the Lutheran Church, which operates nursing and old-age homes throughout the United States.

Now receiving wide attention as an outstanding example of what can be done to make the lives of aged people both comfortable and dignified, Good

Samaritan Village owes its rapid progress to the combined efforts of its administrator, Reverend William Goldbeck, and the local citizenry, including numerous civic and business leaders of Hastings.

Good Samaritan Village is operated on a non-profit, self-sustaining basis, meeting costs through revenue from rental apartments and the care of those in its rest homes and infirmary. Most of the financing has been arranged through the local community.

Development of the Village has been greatly aided by executives and personnel of Kansas-Nebraska Natural Gas Company, a merchandising utility providing natural gas service to numerous towns in southern Nebraska, northern Kansas and northeastern Colorado.

Kansas-Nebraska's vice president, Leo Nelson, is chairman of the finance committee, which has assisted The Good Samaritan Society in arranging financing for the buildings and equipment.

Frank Soldan, sales manager, and Clarence Johansen, assistant sales manager, have provided counsel and help in equipping the Village with natural gas appliances. Mr. Johansen has served as chairman of the building committee since plans for the Village began to take shape in 1957.

Natural gas is used to heat, provide hot water and cook the meals for all residents.

The administrator, Reverend William Goldbeck, is an ordained Lutheran minister who served for many years as a chaplain in the Hastings State Hospital. Reverend Goldbeck had long been deeply interested in the problems of old people. He recognized that many people of advanced age became patients at the hospital because they could not afford the kind of facilities that would best meet their needs.

A dedicated, self-effacing man, Reverend Goldbeck was possessed by the idea of establishing a community in

which old people could live in safety and contentment, with assurance of proper care through the final crises of their lives.

He saw in Hastings, Nebraska, an unusual opportunity for creating this retirement colony.

During 1944 the Federal Government had constructed on the edge of the city a housing development for workers at the Hastings Naval Ammunition Depot. It consisted of a large number of one-story concrete block buildings, subdivided into apartments, plus several larger buildings containing service and recreational facilities.

At the end of the war the entire 80-acre tract had been turned over to the Hastings Housing Authority, and had been named Spencer Park. Some of the buildings had been used during the post-war years by the City of Hastings, to house low income families, while many of the structures languished in idleness, slowly deteriorating, surrounded by high grass and weeds.

At Reverend Goldbeck's instigation, The Good Samaritan Society began negotiations with the Hastings Housing Authority for the purchase of approximately 50 acres of this tract, to include most of the larger buildings and enough of the one-story structures to contain approximately 450 apartments. In the fall of 1957 the purchase was made with locally borrowed funds, and included the option to buy the remaining 30 acres.

During the negotiation period many Hastings citizens, including business and civic leaders, became interested in the project. Volunteer groups were formed to provide various kinds of assistance.

Leo Nelson of Kansas-Nebraska Natural Gas Company was selected to head the Finance Committee. Mr. Nelson was a logical selection because he had demonstrated a keen interest in the project from the beginning, and as a member of the Lutheran Church had been active in numerous church projects, including the work of The Good Samaritan Society.

Clarence Johansen was appointed chairman of the building committee, whose responsibility it was to originate plans for the restoration and equipping of the buildings.

A huge job of restoration faced Reverend Goldbeck and the building committee when they began the job of converting the 50-acre section of vacant, run down, concrete block buildings into livable apartments and service facilities.

Basically of sound construction, the buildings had deteriorated badly from having stood idle for many years. The reconditioning process included "pointing up" the joints between the concrete blocks, repairing roofs and floors, repairing or replacing damaged or decayed woodwork, replacing broken windows, repairing or replacing plumbing fixtures, repapering ceilings and walls, installing new floor covering, and painting interior woodwork and exterior walls. In addition, some of the one-story structures

(Continued on page 39)



Rev. William Goldbeck, administrator (hatless), discusses plans with Kansas-Nebraska's Frank Soldan, left, Leo Nelson, Clarence Johansen

In this building, Good Samaritan Villagers unable to maintain their own apartments have central dining facilities, receive special care



All apartments are gas-equipped. Here, workmen deliver a Warm Morning heater



Tour gets under way as editors board chartered bus (top). Early stop was gas-lit home project at La Veta Woods (center). Lunchtime finds them at Milestone House, where gas-infra red heaters pinch-hit for sun

Southern Counties Gas Co. appliances (bottom, and Livingston looks over



s Gas Co.
om, and
over e
ations of the latest in gas
enter). Top, editor Maxine
of typical Western homes



Editors get 'inside' on Western living

The Pacific Coast Gas Association briefed editors from leading shelter publications on the latest trends in Western Living during a two-day conference Oct. 31-Nov. 1, at Los Angeles.

The Editors' Conference on Western Living was a project of the PCGA's Sales and Advertising Section. Chairman of the section is Don Hosford of Northwest Natural Gas Co., Portland. R. M. McIntyre, Southern Counties Gas Co., Los Angeles, is the section vice chairman. Southern Counties and Southern California Gas Companies acted as co-hosts for the Conference.

West Coast representatives of A. G. A. and the Gas Appliance Manufacturers Association participated actively.

Purpose of the Conference was to show the shelter magazine editors just how the people of the West live, and to explain to them just how this style of living has come about. Natural gas has played a tremendously important part.

During the two days, 22 magazines and newspaper homemaking editors heard three speakers describe the growth and development of living in the West, watched a live demonstration of the newest in gas appliances, and toured three outstanding residential developments in the Southland. H. G. Dillin, PCGA president, conducted an evening dinner meeting.

Tyler Macdonald, senior vice president of Hixson & Jorgensen, Inc., advertising agency, gave the editors an "Orientation to Western Living." Adman Macdonald cited the meteoric growth of the West since World War II, and predicted that it will continue at its

present fantastic pace.

Mr. Macdonald credits this tremendous expansion with the current Western trend to indoor-outdoor living. He said:

"The way we live is indescribable. How does one describe Lakewood? Some years ago it was up to 100,000 population in a housing tract—100,000 people! Getting on the Santa Ana Freeway and coming from Newport to Los Angeles, you see nothing but houses all the way for 50 miles. As you are up in the air on these freeways, all you can see is houses. Those houses are full as far as you can see with kids.

"Since the houses are small because land is at such a premium and because they are so full of children, we have made outdoor living fashionable. This is not choice. There was no room in the house, so we cut out a wall and put in sliding glass doors. If we want to entertain, we leave the kids in the house and entertain in the back yard."

Walter C. Prill, educational services manager of Southern Counties Gas Co., told the group about the gas industry's job of "Keeping Pace with Western Living." Prill gave a brief history of the Western gas industry, then turned to what the future has in store. He was especially optimistic over the fuel cell, or other fuel conversion devices, saying:

"Here's what we think—as energy purveyors—that the future of fuel can provide for this country, and more specifically in this carefully cultivated and conditioned gas-consuming West.

"We will continue supplying our basic energy—natural gas—to do the heavy fuel jobs for homes: cooking,

(Continued on page 22)



"Beauty Queen" kitchen,
left, will be featured
by NEW HOMES GUIDE
magazine in spring issue

"Solid Gold Kitchen"
McCALL'S is being
major trade show
Angeles Farmers

EVERYWOMAN'S-FAMILY CIRCLE
kitchen at right has mar-
free cabinets of laminated
plastic, convenient layout



LIVING for Young Homemakers
kitchen for January 1961
has Provincial cabinets,
red and white accessories

LIVING for Young Homemakers
January issue double feature
also has kitchen at right
with two-level work layout



Gold Kitchen
is being
trade show
Farmers



BETTER HOMES & GARDENS kitchen, below, has steel and wood-fronted cabinets in spring violet and sky blue



AMERICAN HOME "Kitchen in a Spanish Mood" has decor in pepper red and royal purple, shows California influence



Gas kitchens seen at shows

Next month's convention of the National Association of Home Builders in Chicago, Ill., will afford triple exposure to many of the gas kitchens at the left. Magazine-designed and modern, every one of these kitchens and kitchen-laundries has been or will soon be given editorial coverage in national consumer magazines. Many of them were also on display at the 1960 A. G. A. Convention in Atlantic City, N. J.

The collection will be shown at the NAHB convention as part of a unified gas exhibit sponsored by A. G. A. The display will encompass 6,200 square feet of floor space at the show, which will be held from January 29 through February 2, 1961. As its contribution to the exhibit, the A. G. A. Home Bureau will promote the gas industry's Blue Star home program.

Here are some examples of these triple-exposure kitchens and what they contain:

McCall's magazine's "Solid Gold Kitchen" was created for major trade shows and has also been reproduced in full at the famous Farmer's Market in Los Angeles, Calif., where about 4,000 visitors a day have seen it over a period of several months. The kitchen was featured in the magazine's October, 1960, issue. Its warm gold decor features on one wall a stylized orange-tree design of large inlaid ceramic tiles. The room is equipped with a Waste-King Universal gas range, a Norge gas refrigerator, and a Maytag combination gas washer-dryer. Cabinets are by I-XL Furniture Co.

The "Beauty Queen" kitchen by *New Homes Guide* highlights Beauty Queen cabinets by Toledo Desk and Fixture Corporation. These are made of wood on metal frames and are of the grille-front style to soften the utilitarian look of the kitchen. Gas equipment includes a Magic Chef range and a Whirlpool refrigerator.

Institute of Gas Technology building is a well-equipped, modern edifice. School is affiliated with Illinois Institute of Technology



Main entrance of the Institute of Gas Technology in Technology Center, Chicago

A Ph.D. candidate investigates synthetic production of gas



Training, research, information are triple aims of engineering programs on faculty, graduate and undergraduate levels

Gas industry has its own college at IGT

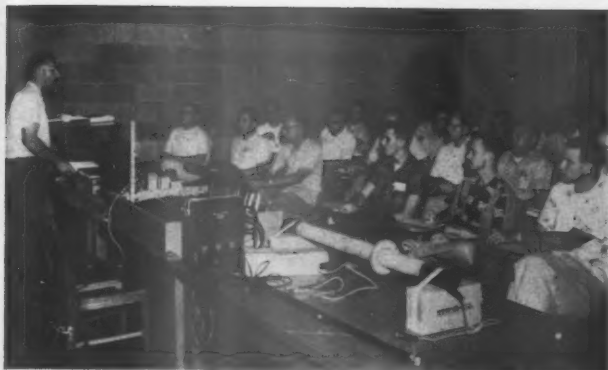
By DR. REX T. ELLINGTON

Education Program Chairman
Institute of Gas Technology

An unusual educational facility exists at the Institute of Gas Technology in Chicago. It is the nation's only school concentrating on developing men for work in every major phase of gas industry operations.

Its uniqueness becomes apparent when it is compared with other colleges of engineering. Nearly every one has a department of electrical engineering, but only a few have a curricula in gas engineering. Of the latter, nearly all are associated with petroleum engineering, and treat with only one or two phases of gas industry operations.

The Institute of Gas Technology was founded in 1941 as a result of two years of study by a committee appointed by



Students at IGT Summer Session hear lecture on gas utility corrosion mitigation practices



Classrooms are clean, well lighted. Sliding partitions add flexibility to space



Ph.D. candidate studying on fellowship measures rates of combustion

the Executive Board of the American Gas Association to investigate methods of advancing the technology of the industry.

In its incorporation, IGT was affiliated with Illinois Institute of Technology to give it the advantages of close association with a major engineering college. It was also given these objectives:

- 1) To train engineers for the gas industry,
- 2) To do basic and applied research in fields of interest to the gas industry, and
- 3) To collect and disseminate scientific information of interest to the gas industry.

The education program functions actively in IGT's efforts to meet each of these objectives.

To fill as many of the industry's educational requirements as possible, a four-

phase program has been developed; it embraces home study courses to assist companies in their own training programs, campus undergraduate and graduate curricula leading to degrees, and summer sessions for engineers from industry.

Undergraduate program

The undergraduate program was the last to be developed, and so is based directly on needs indicated during the life of IGT, and on the history of similar programs which have existed elsewhere in the country.

It stemmed from recognition of the increasing need by the industry for engineers at the bachelor level, and the fact that most engineers in the industry become gas engineers entirely through on-the-job training. With its present facilities, IGT could not hope to supply a

major portion of the demand. However, it could infuse into the industry each year a few engineers with a strong knowledge of fundamentals pertinent to the industry, and some advanced knowledge of the industry's problems. This would be of general value for assessing the adequacy of company training programs, in addition to the specific value of the individual engineer.

Some parts of the industry have greater use for engineers with a mechanical engineering background, while others need men with more chemical or petroleum engineering orientation. For these reasons, the IGT program was based on gas technology options in the chemical and mechanical engineering departments of Illinois Institute of Technology. In this way, full advantage could be taken of the strong basic courses in

(Continued on page 35)

Gas Goes to the Fair

● Throngs at Texas and Nebraska State Fairs see model gas homes, glamorous kitchens

At State Fairs in Texas and Nebraska this fall, gas homes and gas appliances were crowd-gathering attractions.

Approximately four million people were aware that Lone Star Gas Company had an important part in the 1960 Diamond Jubilee State Fair of Texas at Dallas when the gates closed on the exposition in October after a 16 day run.

This figure is based on an estimated newspaper, radio and television audience who were informed of Lone Star's exhibits through news releases, advertising, and guest interviews, plus attendance figures estimated by State Fair officials at buildings where the company's exhibits were located.

Lone Star's exhibits were housed in three of the Fair's large buildings. It is estimated several hundred thousand persons actually saw the company's exhibits.

Two beautiful gas kitchens, the Italian Fortnights Kitchen and the Blue Star Home Kitchen, plus an educational exhibit telling the story of gas from "well-head to burner tip," were featured in the Gas Exhibits Building; free-standing and built-in gas ranges were displayed in the Women's Building and the spectacular RCA Whirlpool Miracle Gas Kitchen was shown in the General Exhibits Building.

The Italian Fortnights Kitchen, an Italian gas kitchen-patio inspired by the

Neiman-Marcus Company Italian Fortnights, was designed by David George.

The kitchen featured Geneva cabinets with a mosaic tile counter top. Adjacent to the kitchen was a patio area landscaped in Italian tradition.

A large display area to the left of the door in the Gas Exhibits Building housed the Blue Star Home Kitchen. This kitchen was constructed for use in an actual Dallas home in the Russwood Acres addition built by Bill Pardue, a member of the Home Builders Association of Dallas County. It was to be installed following the Fair.

The Blue Star Home Kitchen featured Nevamar cabinets, never before shown



Gas bubbling through a torch at Texas State Fair



All-gas Sweetheart Home shown at fair had an RCA Whirlpool gas refrigerator



through limited to form unusual
state fair where gas kitchen shown



Blue Star Home Kitchen was seen by thousands at
Texas fair, then installed in a new Dallas home



Lone Star educational exhibit featured thermo-
electric radio, flameless and radiant heaters



Sweetheart Home represented comfortable, wholesome
modern living with gas at a price most could afford



Nebraskans filing through model home saw latest
gas equipment including air conditioner, disposer

Gas kitchens, gas appliances of the future, educational industry exhibits

in the Dallas area. Two O'Keefe and Merritt built-in ovens and one surface unit were installed. Other appliances included an RCA Whirlpool gas refrigerator, gas charcoal-broiler, dishwasher and disposer and gourmet-center sink.

Located down the hall from the Blue Star Home Kitchen was the educational exhibit. It featured a radio-playing thermoelectric generator powered by a gas light, an Italian-made gas flameless heater and radiant heaters that may comfortably warm tomorrow's football stadiums on the coldest day.

The Italian heater is a new appliance that can generate heat by combining natural gas and oxygen in a process

called catalytic combustion. Catalytic combustion occurs without flame.

Soon to be manufactured and sold in this country, its principle may also be applied to other gas appliances. The heater uses natural or liquefied petroleum gas.

In the radiant heat display, water was boiled in a flask heated by infra-red rays generated and reflected from a gas radiant burner. Radiant heat travels through atmosphere undisturbed by air currents. It's ideal for curing and drying or heating outdoor areas.

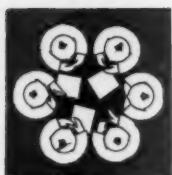
Other displays included in the educational exhibit were devoted to production, transmission, plants, laboratory and exploration. A specially designed

and constructed map showed—by means of lights and adjoining pictures—gas storage fields, gas supply fields, pipeline, compressor stations, gasoline plants and other segments of Lone Star's operations.

The entire Gas Exhibits Building was given a new coat of paint with tan the featured color of the building and coral color in the patio. Gas lights surrounded the building and patio area, where a flaming fountain with natural gas bubbling through water and ignited at the surface was the center attraction.

A gigantic aqua and blue wall, 20 by 35 feet, towered above the Miracle Gas Kitchen in the General Exhibits Build-

(Continued on page 34)



Industrial relations round table

Prepared by

A. G. A. Personnel Committee

Edited by W. T. Simmons

Assistant Personnel Manager
Philadelphia Electric Co.

● Your sense of humor is revealing—In the March, 1960, issue of *Today's Health*, J. E. Gibson stated that scientists have affirmed that your sense of humor reveals a great deal about your character, personality, and general outlook on life. Here are some of the significant findings:

Intelligence and a sense of humor tend to go hand in hand, and people with little intelligence tend to find little in life that is amusing. The best humor has a shock element. Studies at the University of Illinois have shown that the funniest story for a person is the one that provides the greatest shock he can take with a playful attitude. Humor preference indicates personality type. Introverts prefer subtle, sophisticated humor while extroverts are tickled by humor of the slapstick, "haw-haw" variety. Research at Harvard indicates that the more you laugh, the higher on the social scale you are likely to be. Further, people with a well-developed sense of humor are hard to deceive, since possession of a sense of humor implies an ability to read between the lines. Finally, humor is good for your health—physical and mental. A sense of humor is a safety valve for tensions and the best medicine in the world for promoting relaxation and longevity.

● Are you emotionally ready to retire?—In Volume 38, Number Three, of *Trained Men*, Bill Ormsby indicated that an employee who has seriously planned for the day he retires is bubbling with enthusiasm and self-confidence; but the man who fears old age and retirement gets more disagreeable the nearer he comes to that period.

Mr. Ormsby stated that your emotional enthusiasm about retirement is conditioned by how thoughtfully you have considered these vital questions: (1) Have you planned for retirement, and do you know what you want to do? (2) Are you retiring to run away from work, or does retirement represent a new era of freedom for you? (3) Can you give up your authority over your children or your business? (4) Are you willing to change your mode of living to the deflated standard of living that retirement might involve? (5) Can you derive pleasure from the little things in life?

● Ford official disagrees with theory that unions should not be criticized—An official of Ford Motor Company has expressed disagreement with the theory that management

spokesmen should not criticize union conduct because the result may be disturbing to labor-management peace and produce economic retaliation by the union.

Speaking before the Michigan State University Chapter of the Industrial Relations Research Association, Malcolm L. Denise, Ford vice president-labor relations, recently addressed himself to the highly charged issue of union economic power. He said that since Ford officials have been talking publicly on this subject, the United Auto Workers have accused the company of trying to start a cold war. The reaction suggests that UAW might stir up trouble in the shops for Ford, but Mr. Denise said this has not happened. Just the same, he said, there is a school of thought that indicates such a union reaction is to be expected, so management should avoid inducing it for the sake of harmony. However, he said, "After giving this a good deal of consideration, I cannot agree with it. In fact, I find the degree to which this view is expressed with apparent equanimity a sobering and worrisome thing."

Mr. Denise indicated that analysis of union economic power is valuable as a means of checking a drift in an undesirable social and economic direction. He stated that a major union, such as the UAW, faces an employer, such as Ford, in more than one aspect. It represents employees in their day-to-day conditions of employment; but it also operates as a force in American society seeking in various ways to influence the course of our society independently of the fact that it happens to represent, say, Ford employees in particular. He said that the parties have made substantial progress towards developing responsible and sensible relationships in plants over the past several years and that Ford is determined to do its legitimate part in seeking continued progress in this respect. But it takes the position that its remaining silent on public issues of vital concern to the company is not a condition to such progress that a union can legitimately impose. There is no more justification for a union's encouraging trouble in the shops to force an employer to say what it likes than there would be for an employer to retaliate against his unionized employees or union committeemen because, for example, he takes exception to the union's advocacy of legislation requiring government hearings before a price increase can be put into effect.

● Arbitration decision—Arbiter upholds use of tests for job vacancy to determine relative ability—Arbitrator Harry J. Dworkin has rejected a union argument that it is improper for Mead Containers, Cincinnati Division, unilaterally to establish a testing procedure in the selection of an employee bidding for a vacancy. The contract with Local 511 of the Pulp, Sulphite and Paper Mill Workers is silent on the matter of tests, but the arbiter has concluded that testing is a proper exercise of managerial discretion.

The grievance before Mr. Dworkin posed the question of the company's right to use tests in selecting an employee for the job of maintenance helper "B." Bidders for the opening refused to take the tests. The senior applicant contended that he had the necessary skill and qualifications and was entitled to the job, subject to a trial period. The union claimed that to require the applicant to submit to a test would be tantamount to adding a condition to the seniority provision, which was not contemplated by the contracting parties. The company had not used the testing procedure previously in selection of candidates for jobs. Because of his refusal to take the test, the senior applicant was denied the job.

The contract provides that seniority shall be applied to all increases or decreases in force and to promotion and demotion within the bargaining unit. It provides that factors to be considered are length of continuous service; efficiency, merit, and ability to perform the work required; and physical fitness. When an employee is physically capable of performing the work and length of service and ability are relatively equal, length of service shall govern.

The union argued that established past practice had crystallized the job bidding procedure, and that this procedure did not include taking tests. Witnesses testified that over the course of several years hundreds of jobs had been posted for bid and that the senior applicant consistently had been assigned to the job, without testing.

Mr. Dworkin said it should be noted that the union did not categorically oppose the testing procedure as an aid to determining fitness and ability; but it required adequate assurance that the proposed tests would be fairly administered and accurately evaluated. It argued that under the circumstances the subject of tests could be resolved only through collective bargaining.

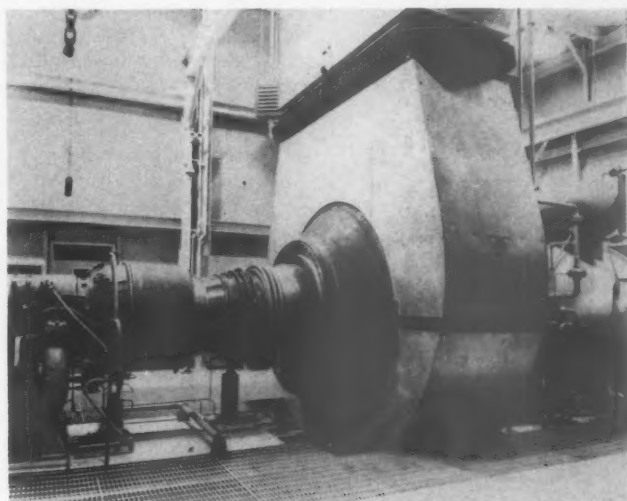
The company said it did not intend to re-

(Continued on page 40)

Jet engine powers gas compressor



Small size of installation is illustrated by Columbia Gulf Transmission compressor station at Clementsville



View inside compressor station shows adapted Pratt & Whitney jet engine linked to centrifugal compressor

Industry's first harnessing of aircraft jet thrust as a source of stationary power began last month in the hills of Kentucky near Clementsville.

A new type of gas turbine, using an adapted aircraft jet engine, is now pumping about 600 million cubic feet of natural gas a day in the pipeline compressor station of the Columbia Gulf Transmission Company, a subsidiary of the Columbia Gas System.

This represents the first successful mating of an aircraft jet engine to industrial power needs.

A revolutionary prime mover, the RT-248 Gas Turbine develops 10,500 rotative horsepower and weighs 34,000 pounds, about one-sixth the weight of a conventional gas turbine unit. It is the first of a family of jet-powered gas turbines to be rated from 350 to 15,000 horsepower. The powerplants are expected to find widespread use in the natural gas, petroleum and petrochemical industries, in electrical power gen-

erating and in marine applications.

Designed by The Cooper-Bessemer Corporation of Mount Vernon, Ohio, the new gas turbine uses as its heat energy source a Pratt & Whitney Aircraft J-57 jet engine, adapted to run on natural gas.

To Columbia Gas, the new power unit represents another step in its constant search to find ways to reduce costs and raise operating efficiency for the System's natural gas customers.

Almost 85 tons lighter than conventional gas turbines of equal power and efficiency, it is designed to substantially lower installation, maintenance and operating costs.

Its light weight, 4,000 pound jet engine section, with 10 to 1 compression ratio, requires no regenerating system. Nevertheless, thermal efficiency equals or exceeds that of all other gas turbines in operation today.

Regenerating systems circulate hot gases to salvage heat energy otherwise

wasted, and are essential in conventional gas turbines to reach acceptable efficiency. They involve extensive equipment, components and piping.

The RT-248 requires less than half the space, relatively simple foundationing and much lighter crane facilities than regenerated gas turbines of equal power. Thus size and cost of a station building are greatly reduced.

Less than four hours are required to remove the jet engine section and replace it, ready again for operation. Conventional systems require weeks of shut down for overhaul.

The adapted J-57 jet engine never reaches jet "take off" speeds, temperatures or stresses. In industrial application, it will operate at or below low stress flight cruising speed. Results are low running temperatures and prolonged service life.

Designers estimate the jet-section will run at least 8,000 operating hours between overhaul, equivalent to a year's

continuous operation.

Raw thrust of the J-57 jet section is converted to rotative power by a specially designed heavy-duty free turbine, completing a team that comprises the new RT-248 gas turbine. In this installation, the J-57 drives a Cooper-Bessemer centrifugal compressor which pushes natural gas through the Columbia Gulf pipeline.

Throughout industry power loads have spiraled. Traditionally, power and size are directly related in engine development. The Cooper-Bessemer Corporation, leading manufacturer of heavy-duty engines and compressors, has long recognized that a new type of gas turbine might alter this relationship to advantage. Under the direction of Ralph L. Boyer, vice president and director of engineering, this became a major Cooper-Bessemer research effort.

The initial problem was to find a light but powerful heat energy source which would require no regenerating system to reach acceptable efficiency.

Millions of dollars and years of research time would have been needed to develop a new, lightweight heat energy source to fit this concept. Then Boyer came up with a seemingly simple yet radical idea:

Lightweight, powerful jet engines had

been used for years to power aircraft. Why not use such a fully proven unit to provide the heat energy for a stationary gas turbine?

Cooper-Bessemer took this unique idea to Pratt & Whitney Aircraft, the world's leading manufacturer of jet engines. That company's J-57, which today powers most of our commercial jet liners as well as long range bombers, tankers and fighters, stood out as the most thoroughly tested, proven jet engine in existence. The J-57's 10-to-1 compression ratio offered unrivalled thermal efficiency. Based on its record, the J-57 was chosen as the ideal heat energy source for the new concept.

Cooper-Bessemer then successfully engineered a free power turbine to be linked to this heat energy source, resulting in the 10,500 horsepower RT-248 gas turbine.

Pratt & Whitney Aircraft engineers adapted their J-57 to natural gas fueling. The RT-248 jet and free turbine sections were joined and fully tested in the Pratt & Whitney Aircraft Willgoos Laboratories, in East Hartford, Connecticut, the world's largest privately-owned turbine test facility.

Only 14½ months has elapsed since Cooper-Bessemer and Pratt & Whitney made the first announcement of their

engineering achievement on September 1, 1959.

The Federal Power Commission granted permission for the installation of the RT-248 at Possum Trot in December, 1959. Last May, ground was broken by Columbia Gulf for construction of the station building. The starting switch was thrown November 15.

In a prepared statement, S. Orlofsky, vice president, Columbia Gulf Transmission Company, said:

"It is expected that by next spring the jet gas turbine will be completely automated and will operate unattended.

"To Columbia the jet gas turbine means substantial potential cost savings in installation costs for future prime mover horsepower requirements with comparable operating costs. A jet gas turbine plant can be constructed for approximately 50 per cent of the cost of a conventional station for gas pipeline service. The jet gas turbine station's estimated low installation cost is of great significance for future horsepower needs. A complete 10,500 horsepower Cooper-Bessemer jet gas turbine station is estimated to cost \$1,988,700 or \$190 per installed horsepower, while a comparable new plant investment for a reciprocating engine pumping station is

(Continued on page 38)

Meet your Association staff



Samuel J. Cunningham

Samuel J. Cunningham joined the staff of the A. G. A. Bureau of Research three and a half years ago as a pipeline research engineer and currently heads up pipeline research for that department. A graduate of Pennsylvania State University, Mr. Cunningham is no newcomer to the industry, having served with Cities Service Oil Company before joining the Association.

His official title with A. G. A. is Secretary of the Pipeline Research Committee, which is a branch of the PAR program. His work covers all phases of the industry from production to design and construction. This includes nearly anything of interest to pipeline company members and sometimes involves wrestling with research problems for individual firms.

Mr. Cunningham says he is practically a New Yorker. What he means by that is that he has lived in New Jersey, Pennsylvania, Louisiana, and California and has finally come to rest in New York. Himself born and reared in Elizabeth, N. J., he is rais-

ing his family in Centerport on the north shore of Long Island, N. Y. He and his wife, June, have four children, three girls and a boy, Scott.

Mr. Cunningham spent five years of active service as an engineering officer in the U.S. Navy and earned the rank of lieutenant. He served aboard a destroyer in the North Atlantic in World War II and in the Korean War saw destroyer duty in the Pacific.

He is a boating enthusiast, interested mainly in powered craft. (When he and the family moved to Centerport in 1955, they found a home directly on Northport Harbor.) They keep, and in season make much use of, a motorboat. "We spend summers boating," Mr. Cunningham says, "and winters trying to keep the house in one piece."

Whenever possible, i.e., between frequent airplane trips to San Antonio, Houston, and Dallas, Texas, in the line of A. G. A. duty, he finds time for the more tranquil pastime of golf.



R. F. Calrow, Minneapolis Gas Co., left, and Ralph Rapson, head of architecture school, discuss winning design of John Lawlor

PRizes PRomote gas PRestige



Display of three prize-winning church designs was seen by thousands in Minneapolis area

Minneapolis Gas Company, winner of this year's A. G. A. Public Relations Achievement Award, has reported another noteworthy community relations project, a company-sponsored architectural design contest.

The company's award-winning campaign featuring the Indian maid cartoon character, "Minnegasco," was a full-scale, direct promotional effort, with strong budget support. The architecture program described by the company takes a completely different approach, combining a small financial outlay with a large investment in imagination and community spirit to achieve long range results in good will and favorable publicity.

The Minneapolis Gas Company Competition for students of architec-

ture at the University of Minnesota, as first conducted in 1960, offered \$500 in prizes for the best designs of a group of three buildings including a church, school and residence.

Approved by the gas company management in the fall of 1959, the competition was announced to students early in the winter quarter of 1960, after details had been worked out with the school of architecture faculty and administration.

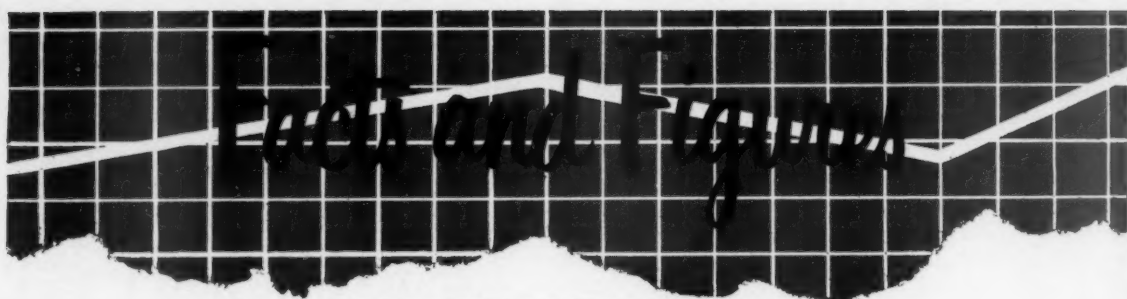
In February, 1960, the company presented a check for the amount of the awards to the University. In March, the winning designs were selected by a panel of judges from the architecture faculty.

The company took pictures of the three winners, their models and their

drawings. News releases were prepared by the company's information department and distributed together with the photographs by the company and the University's news service. Substantial publicity resulted.

The winning work was first shown publicly at the National Conference on Church Architecture in Minneapolis during the first week of May, 1960. An attractive display was then constructed by the gas company, assisted by a local display firm.

Unveiled at the annual convention of the Minnesota Society of Architects in September, this display subsequently was shown at public places throughout Minneapolis, where it was seen by many thousands of local citizens.



Prepared by A. G. A. Bureau of Statistics

Sales of gas to ultimate consumers during September, 1960, amounted to 5.6 billion therms, a relative increase of 5.4 per cent over the comparable month in 1959. Industrial customers accounted for 73 per cent of total sales by utilizing 4.1 billion therms or 6.4 per cent more than in September, 1959. This increase compares favorably with the 3.2 per cent gain in over-all industrial activity as measured by the Federal Reserve Board's index of industrial production. Utility sales to residential and commercial customers increased 2.7 per cent to a total of 1.5 billion therms.

Total gas sales for the 12 months ended September 30, 1960, amounted to 92.1 billion therms, an increase of nearly 7 per cent over the preceding 12-month period. Industrial sales increased by 4.0 per cent during the 12 months to 46.8 billion therms, while residential and commercial sales of 43.3 billion therms were equivalent to a 10 per cent gain. The latter increment is accounted for by the addition of one million customers in the residential and commercial classes, as well as by the increase in saturations.

During September, 1960, the gas utility and pipeline industry expended an estimated \$147 million for new construction. This represents a decline of \$2 million from September, 1959, and is \$15 million less than expenditures for August, 1960. For the first nine months of 1960, construction expenditures aggregated \$1.234 billion or about \$10 million more than was spent during the comparable period in 1959.

New housing activity during September had its poorest month of the 1960 building season. New non-farm housing starts totaled 101,300, 25.6 per cent less than the 136,100 units started in September, 1959. For the first nine months of this year, new units begun amounted to 985,000 as compared to 1,212,200 starts for the same period in 1959. At

(Continued on page 39)

SALES OF GAS AND ELECTRIC RESIDENTIAL APPLIANCES DURING SEPTEMBER, 1960

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	September		August		First eight months, 1960	
	Units	Per Cent Change	Units	Per Cent Change	Units	Per Cent Change
RANGES (including built-ins)						
Gas	176,800	-15.9	160,300	-9.0	1,203,200	-6.7
Electric	142,800	-9.2	122,400	+5.0	1,008,400	-7.9
WATER HEATERS						
Gas	223,400	-8.4	279,400	+9.1	1,888,800	-7.6
Electric	67,500	-10.6	42,700	-28.8	449,700	-20.7
GAS HEATING—total	145,794	-15.8	129,035	-16.0	727,164	-11.1
Furnaces	103,900	-17.3	96,600	-16.1	566,400	-12.6
Boilers	19,394	-2.0	16,435	-9.5	86,264	-2.3
Conversion burners	22,500	-18.8	16,000	-20.8	74,500	-8.7
OIL-FIRED BURNER INSTALLATIONS	47,473	-29.0	59,262	-18.7	345,380	-7.0
DRYERS						
Gas	59,378	-0.1	35,461	-22.8	228,046	-5.8
Electric	106,130	-7.8	69,658	-20.2	432,250	-12.5

Sources: Gas Appliance Manufacturers Association, National Electrical Manufacturers' Association, "Fueloil and Oil Heat," and American Home Laundry Manufacturers' Association.

GAS SALES TO ULTIMATE CONSUMERS BY UTILITIES AND PIPELINES DURING SEPTEMBER, 1960

(MILLIONS OF THERMS)

	Month of September			Twelve months ended September 30		
	1960	1959	Per Cent Change	1960	1959	Per Cent Change
Natural gas	5,491.7	5,209.0	+5.4	89,795.9	83,820.5	+7.1
Manufactured and mixed gas	99.1	95.3	+4.0	2,310.6	2,375.6	-2.7
Total gas	5,590.8	5,304.3	+5.4	92,106.5	86,196.1	+6.9
Residential, commercial, and other	1,507.9	1,468.3	+2.7	45,352.5	41,244.6	+10.0
Industrial	4,082.9	3,836.0	+6.4	46,754.0	44,951.5	+4.0
September indexes (1947-1949 = 100)						
Total gas sales (A. G. A.)	246.6	234.0	+5.4			
Residential, commercial, and other (A. G. A.)	206.4	201.0	+2.7			
Industrial (A. G. A.)	265.7	249.6	+6.4			

PERTINENT BUSINESS INDICATORS, SEPTEMBER, 1960

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	September			August		
	1960	1959	Per Cent Change	1960	1959	Per Cent Change
Industrial activity, FRB (1947-49 = 100)	162	157	+3.2	165	157	+5.1
Consumer prices (1947-49 = 100) BLS	126.8	125.2	+1.3	126.6	124.8	+1.4
Housing starts, non-farm (thousands)*	101.3	136.1	-25.6	125.3	142.0	-11.8
New private construction expenditures (\$ million)†	3,563	3,725	-4.3	3,570	3,822	-6.6

* New series.

† Revised to reflect effects of new series on housing starts.



Light sold to Baptist Church on Gaslite Day gets final touches



Office employees made G-Day sales contacts by telephone



The Owensboro Country Club got several new gas lights

Gaslite Day sets 529 lamps aglow

Western Kentucky Gas Co., Owensboro, Ky., recently conducted a promotion of gaslight sales within the company, with results so successful they may be of interest to other utilities that contemplate increasing their own gaslight sales.

The first step in the company's campaign was to announce to all of its 364 employees that November 3, 1960, had been proclaimed Gaslite Day. On that day, every employee, including general office personnel, was requested to solicit the purchase of one gaslight from each of ten people.

District managers were instructed to hold brief meetings with their employees

on the afternoon before Gaslite Day and also twice during the big day to check on progress.

District managers telephoned progress reports to the company's headquarters at 4:30 P.M. on Gaslite Day and final totals by 9 A.M. the following morning. A list of employees was posted on the bulletin board in each of the firm's 16 district offices and in the general office so that employees could enter their number of contacts and sales as they reported to work at 8 A.M., November 4.

The final report listed 4,786 contacts and 529 gaslight sales to make an average of 13.1 contacts per employee and one sale for every nine contacts.

About 25 per cent of Western Kentucky's meters are in an area with Tennessee Valley Authority power—and 120 gaslights were sold by districts in that area.

Most of the sales made were for Ark-la's Cabildo, Embassy, and Flair Gaslite models. Prices for these, installed, were \$39.50, \$44.50, and \$49.50 respectively.

Amos Veazey, of Western Kentucky's Hopkinsville district won top honors in the competition with 55 sales. G. J. Tankersley, president of the company, made his contribution to the success of the promotion by personally accounting for 10 gaslights sold.

Fuel cell study published by Harvard graduate group

A comprehensive study of fuel cells has just been published. The book, entitled *Fuel Cells: Power for the Future*, presents an economic and technical analysis of developments and opportunities in the field of electrochemical fuel cells.

The book has been written by nine graduate students at the Harvard Business School. Now considered experts in the field of fuel cells, the authors spent almost one year interviewing leading scientists, reviewing current papers on fuel cells, and analyzing the activities of companies doing fuel cell research. They traveled over 10,000 miles to gather the information necessary for the study.

Fuel cells are sources of power which convert chemical energy of fuels (for example, hydrogen, propane) directly into electrical energy at efficiencies up to 85%. The 160-page illustrated report states, "the fuel cell is definitely not in the class of exotic power sources and

should soon play a major role in industry."

At present, there are several fuel cells being considered for commercial application. The Harvard Business School study presents a rigorous analysis of these cells, along with analyses of predicted near-term and long-range fuel cell developments. Presently, the most practical cell, according to the report, is Union Carbide's hydrogen-oxygen fuel cell. Companies whose fuel cell work is discussed in the report include Electric Storage Battery, General Electric, Monsanto, Esso, Allis-Chalmers.

The authors indicate, with extensive supporting data, that in this decade fuel cells will find widespread application in powering fork lift trucks, city delivery trucks, heavy construction equipment, tugboats, ferries, taxicabs, and perhaps automobiles and locomotives. Not every application studied was found suitable

for fuel cells. The authors raised serious doubts, for instance, as to the practicality of using fuel cells to power aircraft and high horsepower outboard motor boats.

Fuel cells may also cause a trend towards small electric power stations. "The low capital requirements for small (fuel cell) generating stations should help to provide many areas of the world with badly needed electric power."

Excellent results are being obtained with fuel cells using hydrogen and oxygen. The report states, however, that before fuel cells are widely accepted in conventional power applications, use of less expensive fuels such as hydrocarbons (propane, ethane) and air will have to be achieved.

Published by Fuel Cell Research Associates, *Fuel Cells: Power for the Future* may be obtained for \$18.75 by writing to P. O. Box 157, Cambridge 38, Mass.

Teague Associates to design gas industry exhibit for World's Fair

The gas industry, which last year became the first whole industry to announce participation in the 1964-65 New York World's Fair, recently appointed Walter Dorwin Teague Associates, noted public buildings architects, to design the industry's \$5.5 million exhibit at the Flushing Meadows fair grounds.

The appointment was announced jointly by Chester S. Stackpole, managing director of A. G. A., and Harold Massey, managing director of the Gas Appliance Manufacturers Association, at a meeting of gas industry officials presided over by John E. Heyke, president of The Brooklyn Union Gas Co.

Andrews & Clark, structural engineers, will have charge of construction of the gas exhibit, which will occupy approximately three-fifths of the 50,000 square feet leased by the gas industry at the Fair site. It was also announced that landscaping will be handled by the firm of Clarke & Rapuano.

Mr. Heyke, who also is president of Gas, Incorporated, an organization established earlier this year to plan and operate the industry's building, said that all or most of the materials used in constructing the exhibit will be either gas-processed or of a type in which natural gas is a principal raw material.

3,000 new gas products

There are more than 3,000 products made of natural gas today that did not exist five years ago, he pointed out. The gas industry's exhibit, according to Mr. Heyke, will account for much of this growth in the petrochemical field as well as depict the progress of gas as a residential, commercial and industrial fuel.

Teague Associates will cooperate in "translating the industry's achievements and prospects into one of the Fair's outstanding industrial exhibits," the Stackpole-Massey statement said.

Interviewed on plans for the exhibit, Walter Dorwin Teague, Jr., said his firm had been closely associated with the gas industry since 1933, having designed many new products displays for equipment manufacturers.

"We are gratified to have been chosen for this assignment and confident that the contribution of the gas industry to present and future American living can be made into an exciting and dramatic show," Mr. Teague said.

The site of the exhibit was described as being just inside the main entrance to the Fair, near stations of both the Long Island Railroad and the I. R. T. subway.

Adjacent to the "lagoon of the nations," the exhibit will be the first of an industrial group to go under construction. Others will include buildings of the Radio Corp. of America, National Dairy Products Co., International Business Machines, DuPont, Coca Cola, Singer Sewing Machine Co., Eastman Kodak Co., Pepsi Cola, Borden, Revlon, General Electric and Westinghouse.

Fair leases going fast

Leasing of Fair space was reported progressing at a rapid rate. The Fair's administration building, located on Grand Central Parkway, Queens, will be dedicated early in January, the gas officials were told.

All cooking, heating, air conditioning and water heating facilities in the administration building and most other Fair structures will be gas-operated.

Officers of Gas, Incorporated, besides Mr. Heyke, include William G. Hamilton, Jr., president of the American Meter Co., Philadelphia, executive vice president; James Comerford, board chairman of the Consolidated Natural Gas Co., New York, treasurer; and Stanley B. Finch, executive secretary and coordinator of gas utility and gas equipment manufacturers' trade groups.



Arkla Gas Caravan tent in downtown Wichita, top, attracted many visitors. Bottom, Arkla "barkers" Carlos Shell, Fred Gresham give spiel

'Carny' pitch sells gas for Arkla

Some of the elements of an old-fashioned carnival side show were injected by Arkansas Louisiana Gas Co. into a recent all-out sales campaign.

Results, both in terms of gas appliance sales and customer good will, were noteworthy.

The "Arkla Gas Sales Caravan" involved a "tent" display of gas appliances in downtown Wichita, Kans., and door-to-door canvassing. The purpose of the whirlwind six-day campaign, which had previously been kept secret from the public, was to introduce Arkla to 11,000 new customers and focus their attention on gas appliances, gas service and the various products manufactured by company subsidiaries.

The gas company based at Shreveport, La., and Little Rock, Ark., now serves some 90,000 former Consolidated Gas Utilities Corp. customers in its new Oklahoma-Kansas Division, formed when a merger of Consolidated into Arkla be-

came effective August 31. These include 11,000 new customers in Wichita, where the Gas Service Co. also has nearly 90,000 meters.

Some fifty top employee-salesmen from the five-state Arkla area formed a team of door-to-door canvassers whose aim was to visit all 11,000 new Wichita customers. They wound up calling on most of them, with a brief, friendly introduction to "your new gas company" plus a sales pitch for gas lights, gas air conditioning, ranges and other products. The drive was led by B. E. Harrell, Arkla vice president-gas supply, sales and sales promotion, and W. D. Bright, director of small appliance sales.

A carnival atmosphere prevailed at the Arkla tent, which was pitched on a parking lot at the corner of Wichita's First and Main Streets and was open from 7:30 a.m. to 6:30 p.m. daily. Various gas lights, gas air conditioning units and heaters, gas signs, ranges, dryers,

refrigerators, furniture, fiberglass pleasure boats and other products sold by the gas company or made by subsidiaries were on display. Two home service representatives were on hand to sell and demonstrate gas appliances and furniture.

Decorations include brightly-colored flags, and lively music was played over a loudspeaker. Arkla Gas sales people wore straw "skimmer" or "katy" hats, complete with carnival-barker canes. Hundreds of free buggy rides were given in a carriage made by an Arkla subsidiary.

Three Arkla "Gaslites," a clothes dryer and two built-in gas ranges were given away at a drawing following the Caravan.

The campaign was a team effort throughout. Personnel included town managers and other employee salesmen. Sales teams held a breakfast meeting

(Continued on page 38)

Western living

(Continued from page 7)

water heating, space heating, air conditioning, clothes drying. And this same basic energy, passing through a little black box in a closet, may silently make enough electricity to run your lights, your radio, your TV, etc.

"Here's all the fuel you need, brought into your home without power interruptions due to storms, ready to meet all of your energy requirements. What basic energy has a greater potential?"

Earl G. Kaltenbach, president of Earl G. Kaltenbach, AIA, and Associates, talked about the trends in "Home Design in Western Living." Architect Kaltenbach's firm is one of the Southland's leading designers of tract homes.

Mr. Kaltenbach feels that the design of a home will, to a large extent, determine how happily the inhabitants will live or work together. He told the editors:

"Here in the West, the problem of controlling our immediate environment is relatively simple compared to people living in harsher climates. Our urban areas are less congested, our climate is moderate, our soil is good, our rainfall not excessive, and so on. Here . . . is an area ideally suited for the maximum in living. Since we spend less time trying to control our environment, we have more leisure time to enjoy ourselves in our ideal climate. Therefore, our homes should be designed with that view in mind."

Mr. Kaltenbach also said that the speculative or merchant builder more closely determines the building trends than does the builder or designer of custom homes.

"I don't believe that we can identify the custom home directly with trends in western living because each is designed specifically for the client. As far as trend is concerned, the custom house is merely a testing ground for many ideas, some good and some bad. The good ones are usually modified and used in the merchant builder's home. Therefore, it seems to be the merchant builder who sets the trends," Mr. Kaltenbach said.

How new gas appliances fit into three distinct styles of Western Living were demonstrated to the editors by Mrs. Peggy Dark, home economist, and Vince Singleton, air conditioning sales representative, of Southern Counties Gas Co.

The demonstration depicted three styles of living: "Sophisticated Living," "Compact Living," and "Outdoor Living."

The Sophisticated woman was described as the housewife who dares to be different. She enjoys the bold use of color and individuality. She has a flair for the spectacular, enjoys gourmet foods, and her home shows the influence of far-eastern decor. While she has her practical side, she prefers luxury and chooses appliances and fuel which invite creativity. Her spacious kitchen is designed to give "magazine cover" look to foods and her family enjoys the comfort of gas air conditioning.

The woman who chooses the "Compact Living" group thinks of herself as an active busy typical homemaker. She has an average size family and is excited by the growth and fast pace of Western living. She and her husband hope for a "second home" in one of the Southland's resort areas. She tends to enjoy living in apartments or a trailer community and picks smaller appliances.

The woman who chooses the "Outdoor Living" group is the typical tanned westerner, a slim picture of health with an active interest in sports. Her life is built on informality, and swimming pools, patios and gazebos appeal to her. Her creativity expresses itself in landscaping and indoor-outdoor living. She likes using functional appliances fitted to her way of life and transitional fuel suitable for all seasons of the year.

Appliances demonstrated during the program included:

Philco Duomatic washer-dryer; O'Keefe & Merritt "Contempo" wall-hung gas range; Coldspot gas refrigerator; Magic Chef foldaway gas range; Arkla and Everglow gas lights; Wedgewood-Holly "Princess" gas range; Norcold gas refrigerator; Valiant water heater; Schwank infra-red gas heater; and a Char-glo portable gas broiler.

During the second day of the Conference, the editors visited three unique examples of Western Living homes. The examples included a luxury custom home, a large apartment development, and a new housing tract.

The luxury home, Milestone House in Whittier, Calif., is an outstanding example of indoor-outdoor living. This hillside house was designed to take full advantage of the terrain, and of the existing trees and shrubs in the area. The house was designed by Architect Earl G. Kaltenbach, AIA, who earlier had spoken to the editors. Milestone House is equipped with an all-gas built-in kitchen, and features an Arkla

two-zone gas air conditioning system.

The apartment development visited was The Commons in Anaheim. This 128-unit (all two-bedroom) project features all-gas built-in kitchens, including gas refrigerators. Builder-developer Ted Hudson showed the editors around. All exterior street and walkway lighting in the spacious development is done by gas lights, giving a distinctive appearance to the entire area.

La Veta Woods was chosen as the example of trends in Western Living in housing tracts. This 38-unit project of three and four bedroom homes, built by the firm of Hayward and Smyth, is located in Orange, Calif. La Veta Woods homes feature all-gas built-in kitchens, and optional Day & Night gas air conditioning. The builders have included many ideas from high priced homes in this average priced development.

The tour concluded with a luncheon at the Charterhouse Hotel in Anaheim, adjoining the fabulous Disneyland.

Editors attending included:

Mrs. Sally P. Adams, equipment editor, *Everywoman's Family Circle*; Mrs. Betty Bay, associate editor, *Better Homes & Gardens*; Mrs. Elizabeth Burris-Meyer, *House & Garden*; Miss Jane Cornish, director, appliance and home care, *Good Housekeeping*; Mrs. Nancy Craig, home service editor, *House Beautiful*.

Mrs. Maxine Livingston, family home editor, *Parents*; Miss Glenna McGinnis, associate editor, *Woman's Day*; Miss Carole Skolnick, home equipment editor, *Redbook*; Miss NellaBelle Dickey, west coast editor, *Living for Young Homemakers*; Miss Esther Foley, home service director, MacFadden Publications.

Mrs. Amber Ludwig, equipment editor, *What's New in Home Economics*; Mrs. Judith Ransom Miller, West Coast correspondent, *Industrial Design Magazine*; Miss Caroline Murray, *House Beautiful*; Mrs. Selma Andrews, home economics director, Los Angeles *Herald-Express*; Mrs. Fleeta Hoke, home economics advisor, Los Angeles *Times*; Mrs. Cleo Kerley, director of home economics, Hollywood *Citizen-News*; Robert Cleveland, *New Homes Guide & Home Modernizing Guide*; Sam Jaffe, editor, *Building News*.

Webb Jones, managing editor, *Home Builders Journal*; Paul Lady, editor, *Gas Industries Equipment & Appliance News*; Frank M. McKellar, editor, *Home Builders Journal*; and William C. Rodd, western editor, *American Builder*.

To combine advantages of older accounting methods with new machine processes requires system revision

The electronic machine and you

BY MARTIN T. HERING

The Peoples Gas Light & Coke Company

The mechanization of customer accounting systems requires a compromise between the type of records needed to process data mechanically and the type of records needed to serve the customer with prompt, accurate, and complete information when he makes an inquiry.

Extensive economies in data processing were achieved by the mechanization of customer's billing and accounting through punch card techniques. To achieve these economies, through machine processing, the data pertaining to a customer was dispersed among several punched card records and mechanically prepared listings. The dispersement of data among several records added to the difficulty of giving prompt and complete information in answer to a customer's inquiry.

Electronic Data Processing equipment using magnetic tape as the record medium makes possible the design of a Customer Accounting System that can process data much more rapidly and economically and provide daily listings from which the customer can be promptly serviced with complete up to date information. Before discussing the daily listings prepared by electronic data processing equipment let us review briefly the changes that have occurred in customer accounting records.

In the day when customer billing and accounting was performed by people using pen and ink, the data pertaining to a customer's account was contained on a sheet in a meter reading book and on a page in a Boston Ledger. The meter reading sheet contained only the data necessary to read the meter. All data pertaining to a customer's account was entered on the page of the Boston Ledger. Meter readings, billing, cash receipts, and all changes were posted to the ledger page as each transaction occurred. The ledger page contained a complete and accurate record of the account for a period of several years and was always available in the Customer Accounting Department for answering customers' inquiries. This necessitated a great deal of manual effort on the part of a large office force.

Then came the mechanization of customer billing and accounting through key driven bookkeeping machines and punch card techniques. The consolidated record contained in the Boston Ledger was split asunder. Punch card techniques resulted in the customer accounting records consisting of meter reading books, punched tabulating cards and mechanically prepared listings. The punched cards included name and address cards, payment cards and advance cards which after processing became billing cards. The listings consisted of a billing register, daily cash listing, and a cycle balance listing. The billing cards made up the accounts receivable file. Mark

sensed meter reading replaced the meter reading book with a mechanically posted history card and the advance card was used as a mark sensed meter reading card.

Customer inquiries were answered by referring to the meter reading book or history card for information pertaining to the premise or meter readings and to the accounts receivable file, billing register or cash listings for information pertaining to the account balance or receipt of a payment. Often customer inquiries could not be answered promptly because the meter reading book was out for meter reading, the meter history card was out of file for posting or the billing card was out of file for collection, cycle balance or billing operations. Also due to the time required to process changes to all the records, complete information was not always assured when answering a customer's inquiry. In spite of all this, great economies were achieved in processing and billing operations.

A consolidated and current record always available for reference was one of the advantages of the Boston Ledger. With today's electronic data processing equipment, the main file magnetic tape can contain a consolidated and current record of each account. All the data for each customer's account can be recorded in the form of magnetized spots on the main file tape. Since the magnetized spots can not be read by the human eye it is necessary to provide an output from

the electronic system that is intelligible to customer accounting personnel for reference purposes.

To illustrate, an electronic data processing system and the listings that could be prepared in such a system for a utility having 1,000,000 customers will be described. Today's electronic accounting equipment makes it economically possible to process all of the million customer records on a daily basis. The daily output of such a system in addition to bills, meter reading cards, collection notices, and statistical summations of sales and receipts would consist of:

1. A billing register for the current billing district.
2. A late and final billing register.
3. A cash receipts listing for the current day's receipts.
4. An accounts receivable listing of all accounts indicating the balance of each account or how paid.
5. A cumulative change listing showing all changes to the customer records since the previous billing date.

When you consider a daily listing of 1,000,000 customer records and the daily cumulative listing of more than 100,000 transactions consisting of changes, cash and billing it does not require much imagination to visualize customer accounting personnel drowning in a sea of daily listings. These daily listings are not as voluminous as first impression indicate. Further, when spread among the various groups of employees responsible for answering customer inquiries, the listings constitute entirely manageable volumes of data.

On a bi-monthly billing basis, such a system receives daily for processing approximately 25,000 meter readings, 25,000 payments, and 5,000 changes to customer records including turn-off orders, turn-on orders, meter change orders, deposits, late readings, transfers, adjustments, etc. The main file tape is a consolidated record of all data pertaining to each customer's account including the date, reading, and meter reading difference of the previous six bi-monthly meter readings. The record of each account contains an average of 400 characters. After the close of business each day, the meter readings, payments, and changes received during the day are

processed on the computer to the main file tape. During the computer operation, tapes are prepared from which the daily listings are printed.

The subsequent description of the daily listings is meant to provide the reader with a perspective of the characteristics of the daily listings and is not intended to describe all details of the customer accounting system. The description of the computer operations, the calculation of number of hours of computer time and printing time is left for the technician. To provide a rough gauge of the number of hours of computer time and printing time required it will suffice to state that electronic data processing equipment, through the medium of magnetic tape, is capable of simultaneously reading, processing, and writing customer records of 400 characters each at a rate in excess of 250,000 records per hour and prepare listings of 120 characters per line at the rate of 30,000 lines per hour. For the purpose of this article, all listings are prepared on continuous form paper size 11" x 14" and the printing is spaced six lines per inch. If we assume a printing depth of nine inches, then it is possible to print 54 lines per page.

The *Billing Register* is a listing of the complete contents of the main file tape for all 25,000 accounts in the current billing district showing the status of the account after billing. Each account record consists of an average of 400 characters and requires 4 lines of printing plus a space of one line between accounts. The records for ten accounts are printed on each page. The billing register contains a total of 2,500 pages.

The *Late and Final Billing Register* is similar to the billing register for the current billing district. Daily an average of 500 late bills and 500 final bills are issued. The late and final billing register contains approximately 100 pages.

The *Cash Receipts Listing* is a listing of all payments in a day's receipts. Payments are listed in account number sequence. The listing for each payment contains a maximum of 30 characters. Four payments are listed on each line and one line is spaced after every five lines. A cash receipts listing of 25,000 payments contains 180 payments per page, 140 pages.

The *Accounts Receivable Listing* is a listing of all accounts showing the account number and a one character code indicating if the account is open or paid. If the account is paid, the code indicates how paid. For example, the letter "O" indicates an open balance, "N" paid net, "G" paid gross, and "P" partial payment. The record of each partial payment is included in the cumulative change listing described below. The unit and page number (7 characters) are group indicated at the left on each line of the listing. Folio, sub-folio, and code (4 characters) for each of 22 accounts are listed across the page on each line. A total of 990 accounts can be listed on each page. The listing of 1,000,000 accounts contains approximately 1,100 pages.

The *Cumulative Change Listing* is a listing of all changes and partial payments received since the date of the previous billing register. The listing contains approximately 150,000 items. Each item contains a maximum of 40 characters of data and three items are listed on each line. The listing contains approximately 1,100 pages.

Each day the accounts receivable listing and cumulative change listing replace the previous day's listings. Consequently, practically all inquiries can be answered by referring to no more than three listings: the billing register, the most recent accounts receivable listing and cumulative change listing.

The current day's listings reflect all changes, due to cash, orders and adjustments that were received the previous day. Copies of this listing can be filed in a centralized location and additional copies transmitted to district offices where interview clerks and other customer contact people can immediately satisfy most customer inquiries without telephoning the central office for information.

In summary, with electronics we are now free to design and use customer accounting records with the prime purpose of being able to supply up-to-date information and to handle inquiries more efficiently, without having to consider the limitations and often rigid requirements of previous systems. Electronics promise more complete and current records that will enable us better to service our customers at over-all lower cost.

Section committees reorganized

A reorganization of committee structures and functions in the area of finance and economics became effective in the General Management Section at the beginning of the 1961 Association year.

Three standing committees were discharged, a new committee was formed, and a subcommittee became a regular standing committee. As a consequence of this realignment, the Section's Managing Committee assumed enlarged direct responsibilities, particularly in the area of economics.

The former Gas Industry Finance and Economics Committee served as a policy-making body for its two affiliated committees, the Economics Committee and the Financial Management Committee. In the reorganization, all three existing committees were discharged, with the Managing Committee now responsible for setting policy and reviewing activities of all the standing committees.

Functions and responsibilities of the former Financial Management Committee have been taken over by a new Gas Industry Finance Committee. This group will also present the periodic Financial Forums, formerly a responsibility of GIFE. The Chairman of this new committee is Robert P. Briggs, executive vice president, Consumers Power Company. Serving as Vice Chairman is Claude F. Machen, vice president, Boston Gas Company.

In view of the fact that a number of Section committees are responsible for



E. J. ROMMEL
Committee on Comparison of
Competitive Services



ROBERT P. BRIGGS
Gas Industry Finance Committee



B. J. LORENZ
Accident Prevention Committee



W. J. TREME
Marketing Research Committee



HARLAN P. NEWTON
Claims Committee



F. A. KNECHT
Rate Committee



L. L. BEEBE
Gas Industry Statistics Committee



JOSEPH A. REYNOLDS
Personnel Committee



VINCENT C. PARKES
Purchasing and Stores Committee



J. E. WATTS
Insurance Committee

varied gas industry economic matters, the Economics Committee was discharged and the responsibility of reviewing or initiating proposals for major economic studies now rests with the Managing Committee.

The Gas Industry Statistics Committee, formerly a subcommittee reporting to the Economics Committee, is now a full standing committee. It will continue to direct the activities of the A. G. A. Bureau of Statistics and to assist other Association Sections or committees in matters of a statistical nature. The Chairman of this committee is L. L. Beebe, chief economist, The Columbia Gas System Service Corp. The Vice Chairman is W. S. Brush, division analyst, Rate Engineering Dept., Consolidated Edison Company of New York, Inc.

Other Section committees will continue to function as in the past, and have organized their work for the 1961 Association year.

Officers of the Accident Prevention Committee are B. J. Lorenz, Chairman, manager of safety, Northern Indiana Public Service Company, and Peter Barry, Vice Chairman, director of safety, Rochester Gas & Electric Corp. This group will continue to study accident causes, prepare manuals, data sheets and other material helpful in the reduction of employee injuries. Among its major activities are the annual A. G. A. Accident Prevention Conference held each fall, the "Accident Prevention Through Informed Supervision" two-day course held throughout the country each year, and the production of safety films.

The Claims Committee, chaired by Harlan P. Newton, claim manager, Boston Gas Company, will continue to assemble information dealing with the proper investigation and settlement of all types of claims, and the gathering of data of interest and assistance to the gas industry. Of major interest to this group is the prevention of claims, particularly those caused by outside contractors' damages. Under preparation is a suggested procedure for gas companies interested in preventing or minimizing such incidents.

As its title indicates, the Committee on Comparison of Competitive Services engages in studies to determine the position of gas service in relation to comparable services rendered by

(Continued on page 39)

*Another gas industry 'first' is greeted
as success by hosts, participants, local newspaper*

Metals treating symposium hailed

More than 200 industrial gas customers of the eight utilities in Connecticut participated in the 1st Annual Metals Treating Symposium, held on November 3, 1960, in Westport.

The program was designed to bring top metallurgists and company officers together with representatives of the gas industry to discuss heat processing subjects aimed at more efficient production.

In addition to those on the program, Herman W. Steinkraus, chairman of the board, Bridgeport Brass Company, recently returned from abroad, discussed "Foreign Competition" as a luncheon speaker.

Official greetings to the Symposium were given by Ronald A. Malony, president, Bridgeport Gas Company, the host company, and R. H. Murray, secretary, Industrial and Commercial Gas Section, A. G. A., on behalf of the other seven cooperating utilities who were:

Connecticut Light & Power Company
Greenwich Gas Company
Hartford Gas Company
Hartford Electric Light Company
Housatonic Public Service Company
New Britain Gas Light Company
New Haven Gas Company

In the morning session, Albert H. Koch, sales manager, standard equipment, Surface Combustion Division, Midland-Ross Corporation, Toledo, Ohio presented an enlightening discussion on the responsibilities of furnace manufacturer and the prospective purchaser of furnaces. He outlined those areas in which the customer must take the supplier into his confidence in order that the proper design and size of a furnace can be



Symposium speakers for morning session, from left: R. H. Murray, A. A. Britton, Stephen Michaels, W. H. Holcroft, and A. H. Koch



Afternoon speakers: Herman Gehrlich, left, R. M. Treco, M. Kober



Luncheon speaker Herman W. Steinkraus with host Ronald A. Malony, president, Bridgeport Gas Co.



Some of the more than two hundred guests who attended the First Annual Metals Treating Symposium, came away enthusiastic in support of the UN.

agreed upon to fit the job. He cited an instance of a customer specifying a 2,000° F. furnace when a 1,850° F. furnace was all he required. Mr. Koch pointed out that the 150 degrees difference amounted to an excessive increase in furnace cost that was unnecessary. This was to emphasize the fact that both sides must be factual and honest in drawing up furnace specifications. He concluded his talk with illustrations of various types of furnaces together with a short description of their general applications and temperature ranges.

In discussing "Natural Gas and Its Evolution in the Specialty Steel Industry," A. A. Britton, vice president-production, Carpenter Steel Company, Reading, Pennsylvania, stated that the acceptance and increased use of natural gas fuel came with the demand for specialty steels—stainless, high alloy, the new steels for high temperature applications and for atomic energy requirements. These developments have taken place during the past ten years, and Mr. Britton showed how the consumption of gas by the steel industry has just about doubled since 1949.

He went on to state that this was due in the main to the inherent advantages of natural gas over other fuels, since there are many steels and alloys made today that could not have been made with other fuels.

The increasing stability of the gas supply has also contributed to its selection as a major fuel in the specialty steel industry and the demand is likely to continue to increase along with demands for special metals.

An important segment of the metal-working industry is concerned with the heat treating of both ferrous and non-ferrous metals at various stages of their manufacture into marketable shapes and products. To secure desirable metallurgical characteristics in the finished items, it is nearly always necessary to heat treat them. In many instances in order to secure the desired surface finish, hardness or other specified result, this heat treating must be done without the presence of air. In order to accomplish this, it is necessary to replace the air in the furnace with a gas that will impart the desired properties.

The production of these gases and the machines to produce them was the subject of W. H. Holcroft, president of his own company, Detroit. He stated that these gases have to be "generated" or otherwise made from some available raw material, which in a number of cases is natural gas, propane or butane. He outlined the various types of gases, the metals for which they were most effective, and the results that could be expected therefrom.

The various types of exothermic and endothermic atmospheres and the equipment required to make those different types of gases were also discussed in detail.

The luncheon speaker was Herman W. Steinkraus, chairman of the board, The Bridgeport Brass Company. A world traveler and many times behind the iron curtain, Mr. Steinkraus was eminently qualified to talk on "Foreign Competition." In 1958 he was elected president of the American Association

for the United Nations which is a non-governmental organization whose entire educational program is devoted to building a strong and effective public opinion in support of the UN.

After generalizing on the effect foreign competition has on our domestic economy and some references to present government policies, he became specific on two industries—steel and automobiles. He said, "Three years ago this country imported 1.1 million tons of steel mill products. Last year we imported 4.4 million tons. By comparison we exported 5.2 million tons in 1957. Last year we exported 1.5 million tons, a drop of 3.7 million tons in two years. Combining the loss in export figures with the increase in import tonnage, we have a total of 7 million tons which in 1959 were not produced in this country as compared to 1957. This is 11% of our total 1959 steel production. Had that 7 million tons of steel been produced in the United States it would have taken 56,000 more people."

Mr. Steinkraus went on to parallel the same situation in the automobile industry where we lost production of 700,000 cars which would have given employment to 65,000 workers. "That combined with the steel figures is a total of 130,000 metal workers in these two industries whose jobs were lost to American industry!"

Mr. Steinkraus said that U. S. industries must find new markets and new opportunities in order to overcome this trend. He concluded: "I am an optimist. . . . Don't sell America short!"

(Continued on page 38)



Perfection infra-red heaters, top, and Selas Corporation display, below, were among the attractions in A. G. A. Industrial Exhibit



25,000 see exhibits at metal show

Six manufacturers of industrial gas equipment occupied 140 feet of main aisle space making up the Combined Industrial Gas Exhibit at the 42nd National Metal Exposition and Congress held in the Trade and Convention Center, Philadelphia, the week of October 17-21.

Some 25,000 visitors saw many new items on display and refinements on others throughout the several exhibit halls.

Some of the equipment displayed under the Blue Flame Banner was in operation further to call attention to the many advantages of gas fuel for industrial processing operations where heat is required.

Those exhibiting in the A. G. A. area were:

American Gas Furnace Co., Elizabeth, N. J.

Gas Appliance Service, Inc., Chicago, Ill.

Charles A. Hones, Inc., Baldwin, L. I., N. Y.

Perfection Industries, Cleveland, Ohio
Selas Corporation of America, Dresher, Pa.

Spencer Turbine Co., Hartford, Conn.

Other manufacturers of industrial gas equipment had their exhibits in various nearby areas.

One of the highlights of Metal Show Week is the Industrial Gas Breakfast held annually on Wednesday morning. This was the 24th meeting with representatives of the metalworking trade press, industrial gas engineers and manufacturers of industrial gas equipment.

The customary greetings to the breakfast by the host gas company were delivered by Charles G. Simpson, vice president and general manager, Philadelphia Gas Works division of U. G. I. The breakfast was presided over by W. D. Relyea, Public Service Electric & Gas Co., Newark, N. J., newly elected vice chairman of the Industrial and Commercial Gas Section, who introduced the speaker of the morning, Robert E. Worden, partner in the public

relations firm of Worden & Risberg, Philadelphia.

Mr. Worden reviewed the history of Philadelphia's new development and urban renewal plans as well as those of the surrounding Delaware Valley. The major emphasis of his talk was placed on how ideas and dreams of planning groups can be brought to a successful conclusion. This he stated was because everyone worked for it. In order to implement such a municipal plan, every organized group must work as a team to accomplish the desired ends. He concluded with a short explanation of how utilities, especially the gas companies, can render valuable help in development plans.

It has been customary, for some years past, for the industrial gas equipment division of GAMA to make an annual award to some member of the industry for outstanding services. This year the award was given to Dolores Marconi, long-time secretary and now administrative assistant in the Industrial and Commercial Gas Section.

2nd Kitchen Planning Seminar held

The second Commercial Kitchen Planning Seminar, sponsored by the Industrial and Commercial Gas Section, was held at Michigan State University, East Lansing, during the week of September 26-30. Attendance was limited to 25 students in order to obtain the benefits of personalized instruction.

Starting with the various types of food operation a particular student might wish to concentrate on during the course, menu patterns and the equipment required for their preparation were then discussed. A lecture followed on flow of materials from receiving to guest service.

General rules of thumb for sizing basic areas, from which the students could determine the total floor space necessary for their own design problem, were presented.

Two lectures were given on the National Sanitation Foundation's standards

and on gas incineration of kitchen wastes respectively. Also covered in separate lectures were water heating in a food service establishment and dishwashing with its effect on kitchen planning. These subjects together with a discussion on kitchen ventilation, gave the students a well-rounded knowledge from which to work intelligently with customers or prospects.

Each day during the course of lectures some time was devoted to laboratory work. This included discussions on merchandising together with inspection of the University feeding facilities where students could see practical applications of the subjects covered in the lectures.

The school was conducted under the personal supervision of Dr. Joseph W. Thompson, director, School of Hotel, Restaurant and Institutional Management, together with a selected group of lecturers.



MSU's Dr. Joseph W. Thompson drives home a point in lecture, above. Below, members of joint A. G. A.-GAMA-NRA committee meet at Seminar



People On Programs

Following the policy of having People On Programs, the Industrial and Commercial Gas Section had three speakers on one of the many specialized programs of the National Safety Congress and Exposition, Chicago, October 17-21.

The section on which the gas industry was represented covered good practices in industrial gas installation and use. George D. Black, Sun Oil Co., Philadelphia, spoke on "Development of Good Practice with the Growth of Gas in Industry." He was followed by Al Koch of Surface Combustion, Toledo, who took as his subject, "Selection of Industrial Gas Equipment for Safety." The final speaker before the question and answer period was Raymond G. Crawford, Chase Copper & Brass, Waterbury, Conn., who spoke on "Organization for Safe Operation and Maintenance."

A state authority discusses maintenance problems of transmission and distribution engineers

Safety in pipeline operations

By NORMAN MORK

*Principal Gas Engineer
New York State Public Service
Commission*

The New York Public Service Commission has been actively concerned during the past 10 years with the safety of both gas transmission and distribution facilities in the state. Considerable progress has been made possible through the wholehearted co-operation of both the interstate transmission lines and local distribution companies in New York. The various safety problems that have arisen have been tackled by informal committees made up of the supervisory engineers of various utilities in the State working with the Commission's engineering staff.

During the last 10 years, the interstate pipelines in New York have maintained a high safety record. This can be attributed to the fact that most of the major interstate transmission lines have been constructed in recent years and built to meet high standards. While there are perhaps 1,000 miles of transmission line dating back to the 1880's, a substantial part of this latter group will probably be retired this summer. The low number of serious accidents, even on these extremely old lines, is an indication of the effectiveness of the utilities' operating and maintenance practices.

While many of the recently installed transmission lines have been built of new high yield strength pipe, at least two companies have built transmission lines of reconditioned used pipe during the past year. In these cases, the pipe was carefully cleaned and minor pits filled with weld metal. This work was carried out in accordance with the ASA B 31.8 Code and, as far as I know, all of this pipe was installed in outlying areas remote from houses and, in each instance, represented only one of many alternate sources of supply to the utility concerned.

Recently I was privileged to attend the Combined Distribution and Transmission Conference of the American Gas Association. I was greatly impressed with the papers and panel discussions dealing with matters of gas safety. It was evident that the gas industry as a whole is cooperating fully to ascertain the most effective methods of promoting safety in the construction, operation and maintenance of gas transmission and distribution facilities.

The American Gas Association is sponsoring research on the causes of pipeline failures. We have all heard that nicks, gouges and dents in the pipe are believed to be contributory to pipeline failures. The present research is directed towards ascertaining standards for judging whether or not a given defect represents a serious hazard. The expected completion of standards of this type by the end of

this year should contribute materially to the safety of the construction of new transmission lines.

A second field of research sponsored by the A. G. A. is the development of a portable test device that would permit the automatic examination of lengths of pipe in the field to ascertain whether serious defects exist. If this project is successful in developing an economically practical device for making such examinations, it will also contribute to gas safety.

During the past few years, the New York State Commission's interest in gas safety has related largely to the question of distribution systems. These facilities are much older than those of the interstate pipelines and, moreover, are more exposed to factors which cause leaks, including corrosion and damage from various causes. The need for interest in this field can be illustrated by an analysis of excess liability insurance losses on gas utilities by the Indemnity Insurance Company of North America.¹

In the analysis, 66 per cent of the accidents involved during the period of January 1, 1955, to June 1, 1959, were attributed to the following two causes.

1. "Failure to maintain a comprehensive and complete leak detection program including bar test surveys, gas detector surveys, and vegetation surveys."
2. "Failure to protect mains or service lines endangered by operations of contractors."

Presented at the 38th annual Conference of Utility Commission Engineers, Boston, Mass., May, 1960.

The primary method of detecting gas leakage without resorting to instruments is by the presence of a distinctive odor. While excellent automatic equipment for the addition of odorant has been developed, it has been the experience in New York that the adequacy of the odor should be checked daily by company operating personnel. Where the distribution company has more than one source of natural gas or where the pipeline company partially odorizes the gas, additional problems are presented. Considerable research is being carried on by A. G. A. to evaluate the adequacy of various odorants from the point of view of distinctive odor and resistivity to adsorption and breakdown by soil constituents. However, these studies have not as yet reached the point where this problem of adsorption of odorant by soil has been overcome.

Some utilities have tried to obtain more effective leak detection by periodically increasing the rates of odorization of gas for a short time. However, the consensus of the utilities in New York State has been that this is not a practical means of leak detection owing to the high incidence of so-called "nuisance complaints" from customers. The opinion has been expressed by some that, in those instances where this method has appeared to be effective, the chances are that the normal rate of odorization has been inadequate.

Aside from the detection of gas through odorization, all other leakage detection methods involve the use of instruments to one extent or another. The traditional method of leak detection for many years has been bar holing. Since it is extremely costly to make systematic bar hole tests along the entire route of gas facilities, alternative methods have been sought. At the recent A. G. A. meeting, one company² announced that it has started a program of installing permanent holes in the pavement to permit periodic leak investigations. These holes are installed using a diamond core drill. At least two manufacturers announced the availability of mobile units intended to make bar holes along any given street at a relatively rapid rate and low cost. Neither of these two methods has been in use long enough as yet to ascertain its effectiveness or practicability.

New detection methods

During the last five years, a means of selectively determining the presence of methane with the use of an infra-red gas analyzer has introduced new means of leak detection. This automatic detection device, either mounted in a station wagon for use along the highways or mounted in a hand-operated cart for checking service pipes, provides a means of readily covering large areas and detecting a substantial percentage of the leaks therein at relatively low cost.

At the A. G. A. conference, representatives of a gas company in New Jersey³ demonstrated a sonic leak detector device that this company has found effective in finding leaks on its system. It is claimed that this method is particularly effective in detecting leaks on customers' service piping.

A spokesman for a major utility in the New York metropolitan area⁴ described a portable television device that it has developed for ascertaining the internal condition of gas mains without excavation of their entire length.

As a result of an investigation of a serious explosion on the company's system, one speaker stated that greater attention should be given to the backfilling of mains.⁵ I would like to quote one paragraph from this speaker's address:

"Traditionally, backfilling receives, at best, only the most casual attention. The old-fashioned idea of pushing dirt into a trench and letting nature take its course is an invitation to trouble. There are too many of us who are engaged in excavating who feel the job is done as soon as the pipe is laid. We actually think that backfilling is an incidental operation to be done by the lowest paid help. More often than not the blame is apt to be put on the technique used when it really deserves to be placed on poor workmanship. We must recognize the importance of using trained and interested help in the backfilling operation."

Corrosion protection

The causes of corrosion and methods of minimizing them were the subject of at least a dozen papers. Speakers on this subject pointed out

that care must be taken in selecting the materials used, such as the coating, insulating joints and anodes. Many speakers stressed that, even with the selection of the best corrosion protection material, supervisory personnel must be continuously alert to see that proper precautions are being taken by construction and service personnel in installing it. Carelessness in installing coating and insulators or accidental contact of the gas main with other metal structures can defeat the purpose of the corrosion protection materials and can actually result in accelerated corrosion in local spots.

One of the speakers⁶ stressed the need for greater research on the effects of alternating currents in causing corrosion. It was his feeling that the corrosion of pipelines due to the effect of alternating currents could be expected to increase in the future. It was pointed out that gas pipelines paralleling high voltage electric power lines are subject to inductive effects. He strongly urged that there be further laboratory research investigations to enable the corrosion engineer to be able to evaluate the degree of existing corrosion hazards caused by AC currents on metal structures or equipment in contact with the earth.

Leakage record analysis

In the analysis of any leak prevention program, an invaluable factor in showing particular fields where further effort should be directed is the maintenance of satisfactory leak records. A few years ago, a standard statewide form was developed through cooperative efforts of a committee representing New York State gas utilities and the Commission's staff which provides for considerable information to be recorded at the time of any inspection of a gas main, either because of a leak or as a result of excavation for any reason by the gas utility involved or by other utilities working in the vicinity. The form was designed so that tabulating cards could be readily punched from it to permit analysis of the available data by customary tabulating machines. At the conference, a major utility in up-State New York⁷ submitted its first report on the analysis of this data. Following is a portion of the speaker's conclusions as a result of this analysis:

(Continued on page 37)

*Gas utility members of A. G. A. to select
'Congresswomen' for housing meet in Washington, D. C.*

Industry to sponsor Women's Congress

In 1961, the gas industry for the first time will sponsor an event which in the past five years has earned national headlines—the Women's Housing Congress, in Washington, D. C.

Since it was originated in 1956, the Women's Housing Congress has captured public imagination as a quasi-official body, elected from among the housewives of America, sitting in Washington to "legislate" on the subject of most concern to them—the home.

In 1961, the women representatives making up the Congress will be elected through area "Be a Congresswoman" contests sponsored throughout the country by local gas utility companies.

Nationwide, the election contests are being coordinated by A. G. A.'s Home Bureau. Through this participation the American Gas Association becomes major co-sponsor of the Congress.

Honorary sponsor is the Federal Housing Administration. Participating sponsors, who will conduct the various events and activities of the three-day meeting, include a number of associations in the home building and home improvement field, headed by the Gas Appliance Manufacturers Association.

A. G. A.'s goal is to secure participation of at least 100 gas utilities as sponsors of local contests.

In mailings to all member companies early this month, the Home Bureau stressed that "the Women's Housing Congress affords the gas industry a unique opportunity to develop an exceptional promotion and publicity vehicle at both the national and local levels."

In 1961, the Home Bureau announces, the Women's Housing Congress will be held at the Mayflower Hotel in Washington, April 2-4.

"The Congress will be conducted under the direction of the participating sponsors. During the three-day meeting, the women delegates will be given an opportunity to confer with nationally-known housing authorities to exchange ideas on the social, technical, economic and physical problems of remodeling and new home construction. They will be asked to give their own views on the kinds of design and living features they want in their homes. In addition, they will be introduced to the new materials and conveniences, the new trends in living that are being developed."

Sightseeing in the national capital, including visits to the White House and other points of interest in Washington will be an added attraction for contest winners.

Said the Home Bureau:

"Industries competitive to home building and modernization are spending millions in persuasive competition for the family's unstretchable dollar."

To counter this pressure the 1961 industry-sponsored Women's Housing Congress will:

"Stimulate the desire of the American homemaker for the abiding values of home ownership and home modernization, as against new cars, color television, expensive vacation trips" and other luxuries.

"Show the American wage-earner that the \$4,000 car on the \$6,000 income

automatically eliminates home ownership, a modernized kitchen" and other home improvements.

"Of course," the Bureau pointed out, "such purpose is closely linked with increased gas appliance sales."

Further specific objectives:

"1. To create demand for home ownership and home modernization and

"2. For better quality construction through joint endeavor by all segments of the industry and

"3. To point the way toward improvement of products and services that go into a building or modernization package;

"4. To provide clues to this industry's sales problems and

"5. To provide the gas industry and other sponsors with a promotion and public relations vehicle of high caliber and national significance."

That the Congress will effectively fulfill the last-named objective is assured by the fact that both Associated Press and United Press International will cover the event. Radio and television networks are being contacted, and such magazines as *American Home*, *House Beautiful*, and *Saturday Evening Post* have indicated active interest.

Opportunities for local promotion and publicity are practically unlimited. As outlined to members, the promotion can cover three phases, as follows:

Before: all stages of a local "Be a Congresswoman" contest.

During: local coverage and exploitation of the national Women's Housing Congress.

After: local "Congresswoman" activities and appearances.

Detailed suggestions for implementing each of these promotion phases were presented to members in the Bureau's mailing.

Guidelines for gas utility participation in the Women's Housing Congress program are as follows:

Each company taking part will sponsor a local "Be a Congresswoman" contest in February 1961, to select a representative from its area to attend the Women's Housing Congress in Washington, D. C.

Only expenditure will be the winner's transportation to and from Washington, D. C. plus hotel expenses. The latter will be limited since most meals will be taken care of by national sponsors and interested publications.

Companies will receive:

1. *Contest Entry Blanks.* These entry blanks will contain approximately 75 questions (of the "yes-no" or "true-false" type answer) together with an essay type question. These questions will be submitted by the various sponsors. Open space on the entry will allow companies to include additional questions of their own choosing. Local representatives of other national sponsors will help promote the contest.

2. *WHC Promotion Publicity Kit,* full of ideas on promoting this activity before, during, and after the Congress. Numerous press releases will be part of the package. Companies will receive this package in January.

3. *Window Streamers and Counter Cards*—attractive, exciting material to promote the Congress and invite participation by customers. These same pieces will be distributed to fellow participants for maximum exposure in each area. Companies will receive this material in January.

4. *Congress Report.* Each participating utility will receive a transcript of the proceedings of the Congress and a summary of the results of the national survey.

Tabulation of Entries. If a company serves more than 50,000 residential meters, tabulation of the answers of 1,000 entries and sending of the results to A. G. A.'s Home Bureau will be appreciated. This tabulation would not cover any questions you might include for your own information nor the essay material; only the answers to the "yes-no" or "true-false" type questions.

Utilities serving less than 50,000 residential meters may send 1,000 entries to A. G. A. for tabulation if they do not have sufficient staff to handle this work.

Selection of contest winner will be left to each company's discretion, the judging to be handled locally. A. G. A. should have the names of winners by March 10.

Among the participating organizations sponsoring the 1961 Women's Housing Congress, are the following:

Gas Appliance Manufacturers Association
Better Heating and Cooling Council
Carpet Institute
National Association of Plumbing Contractors
National Bureau of Lathing and Plastering
National Lumber Manufacturers Association
National Mineral Wool Association
Portland Cement Association
Home Improvement Council

Co-Sponsor—American Gas Association

Honorary Sponsor—Federal Housing Administration

It is anticipated that other national trade associations will join this program as it moves along.

All gas companies interested in participating are urged to contact the A. G. A. Home Bureau as early as possible.

State Fairs

(Continued from page 13)

ing, attracting attention to the kitchen. It was located in the center of a large area, surrounded by a display of gas appliances and a seating area for persons watching the demonstrations.

An average of 15 demonstrations were given each day throughout the Fair by Marcia Corley, hostess for the RCA Whirlpool Corporation, and three Lone Star home economists, Doris Gee, Mary Ann Durbin and Dorothy Patrick. Whirlpool officials estimated some 45,000 persons witnessed the demonstrations during the Fair's run.

The different, utterly work-free "kitchen of the future" featured gas appliances never before thought possible. They heated, cooled and purified the air; refrigerated, prepared, cooked, mixed, and blended food; did the laundry; disposed of food and trash waste quickly, quietly and odorlessly and dozens of other tasks—all by gas!

The kitchen featured a gas rotisserie

which cooked with infra-red rays and revolved to face either the interior of the kitchen or the patio; a concealed gas infra-red oven; a magic meal maker and a portable dishwashing unit that propelled itself to the table and back.

Others included a gas refrigerator; easy-to-clean flush surfaces, that looked like large ceramic squares, for cooking hamburgers and the RCA Whirlpool Portaburner, which could be moved about the kitchen and plugged in to any one of a number of strategically located gas convenience outlets.

An unusual exhibit at the Nebraska State Fair this year was the all-gas Sweetheart Model Home. The exhibit was a "first" for the Nebraska State Fair, and probably a "first" nationwide.

Visitors were lined up from 10:00 a.m. until 8:00 p.m. all seven days of the Fair trying to go through the house, reported Project Manager Ross Cavaleri, sales promotion supervisor for the Metropolitan Utilities District, Omaha, Nebraska. He estimated that 100,000 people actually went through the model home.

The all-gas Sweetheart Model Home was built by the Thornton Construction Company of Omaha under the sponsorship of the Nebraska Blue Flame Association. It was selected by the committee in charge because the Sweetheart Model most nearly represented the home the average Nebraska family can afford to own, and offers wholesome, modern living for the entire family.

All gas appliances were donated, and the Nebraska Blue Flame Association guaranteed the builder \$8,000 worth of materials for the home.

The builder moved the house to a lot in Lincoln and sold it, receiving enough money for the home to pay actual building costs.

Within one week after the State Fair showing, Thornton Construction Company (the builder), through statewide promotion and advertising, sold 80 Sweetheart Homes in Omaha and received several hundred inquiries from Lincoln and other communities throughout Nebraska.

these departments, and all of the technical electives permitted in these programs could be combined into a cohesive option in gas technology.

The option approach, rather than creation of a gas engineering department, was adopted because the expense is much less, and duplication of courses taught in other departments is avoided. It also permits increased emphasis on fundamentals characteristic of current efforts in the strongest engineering colleges, while giving the student advanced knowledge of the industry's operations.

The few young men who have graduated from this new program into the industry are proving that they have advantages over competitors entering the industry from non-gas-engineering departments. There are definite indications that the IGT graduate can complete the usual cadet training program at an accelerated pace, and become a productive employee on permanent assignment at an earlier date.

IGT's program has developed primarily under scholarships, and this has resulted in extra strengths. The students have been of extremely high caliber, and are associated with the industry from the time they enter college. The scholarships have been either company- or IGT-sponsored, and granted through an IGT member company. The student's program includes summer training with his company for each of the years he is in college. Most companies make the summer training as instructive as possible, so much of the student's cadet training is out of the way by the time he graduates. This further increases his capability.

The gas technology option courses emphasize fundamental science, but illustrate gas industry problems through analysis of real situations wherever possible. Fundamentals are emphasized because applications change, but principles do not. Also, it is easier for a man to extend his practical knowledge than his knowledge of theory, after graduation.

The course work on natural gas production and processing includes basic sedimentary geology and a brief review of prospecting and drilling techniques. Study of properties of porous media provides the background for treatment of fluid movement in reservoirs. The pressure-volume-temperature and phase behavior of hydrocarbon systems are

studied in detail. Basic material balances are applied to various types of reservoir fluids and drives, for discussion of storage, withdrawal and deliverability. Applications of phase equilibria and process calculations to gas dehydration and natural gasoline recovery are studied.

In a similar way, natural gas transmission covers the concepts of the kinetic theory of gases, thermodynamics, fluid mechanics, and boundary layer theory, which provide the background for the study of pipeline flow, gas transmission and compression. Load variation, fixed and operating costs, and regulatory codes, are taken up in discussing the economics of transmission.

In natural gas distribution, load characteristics and rate structures are studied to define the engineering problems which must be solved. The applications of electronic computers are illustrated in thermodynamic and network flow calculations. Consideration of electrochemistry and soil environments give the fundamentals behind corrosion mitigation.

The basic approach is especially appropriate in natural gas fuel utilization, which takes up the thermodynamics, mechanism, theories, and chemistry of combustion and flame phenomena important to the application and control of combustion. Various types of flames, combustion systems, burner design, and substitutability of fuels are also studied. The remainder of the course is spent on the mathematical design of control systems, and heat transfer from flames.

Graduate program

IGT's facilities for graduate study include a large library, and air-conditioned classrooms and laboratories. Instrumentation includes a variety of mass and radiation spectrometers, chromatographs, and digital and analog computers. Separate laboratories are fitted with specialized equipment for work on combustion, gas and liquid properties, reservoir engineering, tracer chemistry, catalysis, high pressure and temperature reactions, fluid flow, and analytical methods.

The graduate program also possesses unusual strength. Its major objectives are to develop promising young scientists, and to carry out significant basic research for the industry.

Major efforts have been made to eliminate the criticisms of overspecialization and narrowness often made of Ph.D. programs:

1) That the student devotes so much time to study of one small division within his departmental field that he no longer has any grasp of his discipline as a whole,

2) That the close master-student contact that sparked the creativity of so many young men in the past has been lost, and

3) That most engineering departments are unable to present the subject penetration that the modern student needs in many areas.

To accomplish this, the incoming student is given a broad introduction to the fundamentals of his field, to help him develop technically and appreciate the breadth of the problems of the gas industry. This is effected through a series of courses at the master's level, each of which covers a broad area of fundamental science, and gives the master's graduate immediate capacity to function productively in industry.

For the Master of Science in Gas Engineering degree, candidates divide their time approximately as follows: 40 per cent on graduate gas technology courses, 10 per cent on mathematics beyond differential equations, 10 per cent on advanced thermodynamics, 25 per cent in research and thesis, and the remainder on elective advanced engineering and mathematics courses.

The Master of Gas Technology program is approximately the same, for the first year, as the Master of Science program; the second year is essentially devoted to training in business management.

The doctoral program departs from the concept of departmental majors and minors, so any aspect of the science of gas may be pursued. To develop educated men and carry out basic research within such broad limits demands a special approach with the limited size of IGT's faculty. The student assembles a plan of advanced coursework from IGT and other Illinois Tech departments, and outlines a special reading program that will permit him to develop adequately in his selected field.

For upper level work, IGT teaches courses for special emphasis in areas of specific interest to the gas industry that are not treated in other departments. Major fields of doctoral study might include gas and liquid behavior (molecular theory, pressure-volume-temperature relationships, phase and transport phenomena, and fluid mechanics), reservoir

engineering, reaction kinetics, heterogeneous catalysis and solid state physics, reactions in solution and fuel cells, heat transfer, and combustion.

The curriculum for the Doctor of Philosophy requires study distributed approximately as follows: gas technology, 25 per cent; research, 33 per cent; mathematics, 15 per cent; advanced science and engineering, 15 per cent; and the remainder as electives.

Past experience has shown that comparatively few gas industry companies actively seek engineers with advanced degrees for carrying out their work. However, the development of men for research and education in the industry, research and development in allied industry, technical planning in large companies, and carrying out basic research for the gas industry, is so important that it warrants development of IGT's graduate program to the full capacity of its facilities.

Summer sessions

The summer sessions, which consist of separate three-week courses in natural gas production, transmission, distribution and fuel utilization, were developed to facilitate the transition of engineers from other major fields into the gas industry, and to assist in keeping men with a number of years' experience up to date in their fields.

The sessions are aimed at enhancing the attendee's knowledge of the fundamentals of fields important to the industry's operations, to bring the problems of various phases of the industry into sharp focus, and to acquaint the individual with the most modern methods of attacking these problems.

They help the engineer with a general background to learn more about the specialty in which he is doing his everyday work. They help the engineer with several years of assignment in one area to broaden his acquaintanceship with the industry in preparation for more responsible positions covering larger fields of effort. Many companies employ the sessions in rounding off a young engineer's indoctrination after he has gained two or three years' experience.

These sessions are extremely valuable in the over-all education and research effort of the industry. The availability of organized course material and instructors, from the undergraduate and graduate programs and the research staff, provides a broad academic basis on

which to build intensive short presentations. In addition, the exchange of information between course attendees and IGT personnel is extremely beneficial in keeping IGT abreast of current operating problems.

IGT personnel present the fundamentals of each topic, and integrate it into the over-all industry program. When IGT personnel are not familiar with the most up-to-date techniques, recognized authorities from the industry or allied fields are called in to complete the presentation.

Attendance at the courses requires that an engineer be away from his job for three weeks, but over 150 companies have found that the benefits outweigh this inconvenience. In the nine years since the sessions were instituted, 616 men have attended them. Each year a number come from Canada, and some have come from Pakistan and Great Britain. Also, each year some enrollment applications must be refused to keep classes at a size (about 40 men) which permits detailed class discussions and assistance on each man's problems.

Home Study courses

The home study course program is designed to assist people throughout the industry to gain broader knowledge of the industry's operations without leaving their place of employment. The courses are developed with the objective that they be understandable to the high school graduate, but contain sufficient information to be worthwhile to the young technical graduate entering the industry from another field. Through these courses, instruction is made available to individuals who could not otherwise participate in a program presented by the Institute.

Each course is designed to give the student a clear picture of how his phase of the industry fits into the operations of the whole, and to acquaint him with the interrelation of the various operations in his line of endeavor. Many technical operations are discussed in a way that permits the individual without technical training to appreciate the work going on around him, and thus become a more valuable employee and better representative of the industry.

To this time, two courses have been prepared. The first, Natural Gas Production and Transmission, has been available for some time and has been used by over 2100 individuals throughout the

world. A second, Gas Distribution, is in printing and will soon be available to the industry.

Future program

A successful education program must be dynamic. Courses must be brought up to date continually, and text material be under constant revision. Under the present international and competitive domestic stresses, the rigor and academic level of instruction must be raised to meet the competition of foreign technology. The needs of industry must be anticipated far enough in advance that men with adequate training are available when need arises. The many problems which will be encountered in meeting economically the tremendous demands to be made for energy in the next generation must be recognized now for competent personnel to be developed in time to solve the problems which will arise because of these demands.

IGT has developed its program to dispatch its responsibility as the research and education facility for the gas industry, and help train people to solve one phase of the great energy supply problem. It is now important that many more capable young men be attracted to this field of study. IGT will gladly work with any company to develop a scholarship program which will meet its needs.

Finally, further expansion of IGT's programs must be considered to keep up with the needs of the industry. Summer sessions for midmanagement nonengineers have been requested, as have short seminars on areas in which significant research accomplishment has been made.

Some executives have requested gas industry business administration summer sessions at IGT, to be developed in cooperation with a nearby department of business administration.

The industry has at its disposal a dynamic, growing educational facility. IGT can continue to expand its service if the needs of the industry are communicated to it, and the existing programs and its graduates are fully utilized by the industry.

(For further information on the IGT Education Program, and company-sponsored scholarships, readers are invited to write to Dr. Martin A. Elliott, director, or Dr. Rex T. Ellington, education program chairman, Institute of Gas Technology, Technology Center, Chicago 16.)

Operating

(Continued from page 32)

"The first conclusion hints at the feasibility of minimizing future leaks in existing plant by establishing replacement programs developed, area by area, from consideration of data on age and nature of soil.

"The second conclusion sounds a warning that the industry must develop better service installations for the future. Perhaps materials other than steel will be developed that, besides preventing these early corrosion leaks, will not introduce a new set of defects of their own. Perhaps adequate cathodic protection of steel pipe will prove to be the best answer. Certainly field installation of coated pipe alone does not seem to be achieving the complete perfection necessary to do the job."

It is my hope that the other utilities in New York State and elsewhere will find this data equally valuable.

Contractor damage

Despite advances in leak detection and prevention, the gas industry continues to be plagued by one source of gas leakage of an entirely man-made nature, namely, damage to facilities by contractors working in the vicinity. In 1953, at the recommendation of the New York Commission, a section was added to the New York State Penal Code requiring proper notification to the respective utilities of the intention of doing certain work in the vicinity of gas facilities. Despite the existence of this law, many contractors have displayed an apparent lack of concern for the potential hazards involved and either fail to give proper notification to the respective utilities or ignore the instructions given by said utilities and their inspectors in areas where underground facilities are present. Consequently, most of the utilities in this State are undertaking an educational campaign involving not only the contractors but, in some cases, the actual personnel that operate the power equipment that cause most of the damage. Local municipal authorities are being urged to enact legislation requiring persons obtaining street opening permits to give

notice of the proposed work to the local gas utilities.

Standard specifications

Many of the larger utilities throughout the country have prepared detailed standard specifications for almost every aspect of the construction and maintenance of distribution facilities. The American Gas Association is presently engaged in a program which would make such valuable data available to the smaller utilities that do not have the necessary staff to prepare such material. Efforts of this type can certainly contribute to the safety of gas facilities throughout the country.

One manufacturer has developed a new magnetically operated valve designed to serve in place of the conventional curb valve, the inside tamperproof shutoff valve and the relief valve and vent on house pressure regulators.

Conclusion

In conclusion, it is my opinion that the gas industry and the American Gas Association are doing an effective and realistic job of tackling the problems of gas safety. The wide scope of this field and the technical details of its various ramifications make it impossible for an engineer in the utility regulatory field to become an authority on the subject. However, I believe

that regulatory engineers should evaluate the over-all reasonableness of the safety programs adopted by utilities under the jurisdiction of the various state commissions in the light of the experience of the industry as a whole. The management of each utility has the responsibility of making certain that such a safety program is carried out by its own personnel and contractors in its employ.

I believe that the regulatory engineer can be helpful in encouraging the informal interchange of experiences and opinions between utility engineers on the various safety problems that arise from time to time.

Last, but not least, the regulatory engineer must recognize that extensive rehabilitation programs to minimize leakage and promote safety will result in increased capital and maintenance expenditures and may ultimately be reflected in the rate structure.

References:

1. A. G. A. Publication DMC-60-34-Crittenden, R. T.—"How Operating Personnel Can Help the Claim Department"
2. Merriman, F. J., East Ohio Gas Company, Cleveland, Ohio—"Diamond Core Drill for Spudding in Permanent Inspection Holes for Leaking Investigations"
3. A. G. A. Publication DMC-60-29-Manning, D. J.—"Sonic Leak Detector"
4. A. G. A. Publication GSTS-60-8-Xenia, C. P.—"Viewing of Main Interiors by Television"
5. A. G. A. Publication DMC-60-27-Ormanston, R. H.—"Backfilling and Soil Stabilization"
6. A. G. A. Publication DMC-60-3-Kulman, F. E.—"Effects of Alternating Currents in Causing Corrosion"
7. A. G. A. Publication DMC-60-20-Shepard, R. M.—"Top Management Will Look at Corrosion Control"

Statement Required by the Act of August 24, 1912, as Amended by the Acts of March 3, 1933, July 2, 1946 and June 11, 1960 (74 Stat. 208) Showing the Ownership, Management, and Circulation of

The American Gas Association Monthly published monthly, except July and August, bi-monthly then; at Brattleboro, Vermont for October 1, 1960.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Gas Association, Inc., 420 Lexington Ave., New York 17, N. Y.; Editor, Bernard Kaapcke, 420 Lexington Ave., New York 17, N. Y.; Managing editor, None; Business manager, None.

2. The owner is: American Gas Association, 420 Lexington Ave., New York 17, N. Y.; President, Wister H. Ligon; 1st Vice President, Lester T. Potter; 2nd Vice President, E. H. Smoker; Treasurer, Vincent T. Miles; Assistant Treasurers, James F. Daly and C. J. Dunne; Managing Director, Chester S. Stackpole; Secretary, Jac A. Cushman (all of 420 Lexington Ave., New York 17, N. Y.).

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 9,500 issues per month.

BERNARD KAAPCKE, Editor

Sworn to and subscribed before me this 20th day of September, 1960.

ROBERT J. CUTTING
NOTARY PUBLIC, STATE OF NEW YORK
No. 30-5895810
Qualified in Nassau County
Term Expires March 30, 1962

Jet engine

(Continued from page 16)

estimated at \$3,832,500 or \$365 per installed horsepower. The installation cost of the traditional industrial gas turbine plant approaches that of a reciprocating engine station.

"Columbia is confronted with constant inflationary pressure and is continually attempting through new developments to minimize the increases in natural gas transportation costs. This experimental jet gas turbine venture is an example of Columbia's effort to obtain greater productivity for the dollar invested and improve efficiency of operations to resist the pressure of inflation.

"The combined forces and teamwork of the three companies that translated the project into a reality are truly an achievement in the forward progress of the natural gas industry."

Arkla carnival

(Continued from page 21)

early each morning at Caravan headquarters in the gas-air conditioned Lassen Hotel to plan strategy for the day. Teams reported sales daily at the former Consolidated Gas office, now the Arkla gas office at 109 South Main. These reports were relayed to salesmen the next morning at breakfast, and tips on how further sales might be made were given by Caravan leaders.

Results of the campaign demonstrate the effectiveness of this kind of hard-sell effort. Sales during the six-day campaign included: 540 gas lights, 125 gas built-in ranges (mostly to builders), 10 Arkla Sun Valley gas air conditioning units, 15 Arkla "Gasigns" (lease-sale), four gas clothes dryers and one combination washer-dryer, plus over a score of Razorback fiberglass boats, furniture and other Arkla subsidiary-made products. Many of the appliances were financed with payments on customers' new Arkla gas bills.

So successful was the Arkla Gas Caravan in Wichita that the company held a similar promotion in Little Rock several weeks later which netted these sales: 307 "Gaslites," 18 "Gasigns," 13 gas ranges, four Arkla-Humphrey gas circulators, five gas dryers, and other products.

Because of these gratifying results, additional Caravans may be held in other cities on the Arkla system.

Metal symposium

(Continued from page 28)

The afternoon talks were opened with a highly technical paper on "Space Age Materials for the 60's," by R. M. Treco, senior staff metallurgist, Olin Mathieson Chemical Corporation, New Haven,

The Gas Company's Symposium

There can be no dispute about the tremendous value of gas for use in a virtually unlimited number of business and industrial activities. In recent years, gas customers have increased beyond number, and the prospect now is that even faster and broader progress is still ahead.

There was, in particular, more than casual interest in the recent symposium on "Metals Treating," sponsored in Westport as the American Gas Association's first annual program of this type. The Bridgeport Gas Company was in charge of the program, offering an agenda of timely subjects on metalworking in the ferrous and non-ferrous fields. The program was established as a starter to be followed by others in other highly industrialized areas of the nation. The program as carried out in Westport was developed by the Bridgeport Gas Company in cooperation with the American Gas Association.

It is gratifying to Connecticut residents, of course, to see a pilot gas program developed and demonstrated in this state. It is even more reassuring to know that the plan will be expanded throughout the country, from border to border. The story of gas has been one long record of greater coverage of family, industrial and business needs. As the gas industry has perfected the quality of its product, and has increased the length and capacity of its transmission lines, the consuming public has made unexpectedly satisfying gains.

The new gas symposium series should build for the future even greater successes than those of the past.

—Editorial

The Bridgeport, Conn. Telegram

Connecticut. Mr. Treco prefaced his remarks with a short outline of the "Materials Barrier" which was the "very real obstacle in limiting our forward progress in rocket and space vehicle components, in nuclear power devices, in energy conversion devices, and, of course, in numerous high temperature applications."

To surmount this materials barrier, the chemists, the metallurgists, and the physicists of the country applied their talents to the discovery and development of new materials that would meet the space age requirements.

Mr. Treco went on with a detailed discussion of how this was all brought about and his paper will make an excellent reference text in this field.

The subject of "Practical Problems of Heat Treating" was discussed by M. Kober, president, Commercial Heat Treating, Inc., who operates one of the finest heat treating establishments in Bridgeport, Connecticut. He recounted the many problems facing the commercial heat treater who does work on a variety of metals and products from many customers.

Mr. Kober made it plain that it was the manufacturers' responsibility to be very explicit as to the type of metal being submitted for treatment and the exact metallurgical results he wants. In many instances, he stated, his company gets parts with instructions to "just make it hard," without any description of metal type or end use. Then the heat treater has to guess and a wrong guess costs everyone money.

One of the aspects of metalworking that is not given the attention it deserves is the low temperature field of oven applications, discussed by Herman Gehrich, president, Gehrich & Gehrich, Inc., Woodside, New York.

Oven treatment of products covers a very wide field in the temperature range of 150° F. to 1,250° F. and includes a long list of applications for metals, metal finishes and even food products. In metalworking, it is just as important to have accuracy and uniformity when applying comparatively low temperatures as it is in the case of high temperature furnaces.

The entire metals symposium idea and its program was received with acclaim by the attending industrial gas customers with a request that it be repeated in Connecticut as soon as practical.

However, the next Metals Treating Symposium will be held in Detroit during the Metal Show there in October 1961.

General management

(Continued from page 26)

electricity, oil, coal and liquefied petroleum gases. In cooperation with member companies, this Committee undertakes comparative tests of the performance of these fuels, usually under field conditions. The group, headed by E. J. Rommel, Chairman, vice president and commercial manager, Dayton Power & Light Company, and G. L. Murphy, Vice Chairman, assistant general gas sales supervisor, Consumers Power Company, works closely with the A. G. A. Utilization Bureau in carrying out its responsibilities.

The Insurance Committee, chaired by J. E. Watts, insurance manager, Long Island Lighting Co., reviews current developments in all forms of insurance coverage for gas utility companies and studies possible methods to reduce the cost of this coverage. Appropriate subcommittees keep abreast of developments in such insurance areas as excess liability, boiler and machinery, fire, group, and liability and workmen's compensation.

The Marketing Research Committee plays an important role in fostering the use of marketing research procedures among gas utilities. It advises the Association on its own marketing research activities and maintains liaison with marketing groups of

the Gas Appliance Manufacturers' Association and other industry organizations. Among its major projects is the publication of the Marketing Research Handbook, available for industry personnel, and the holding of a marketing research seminar each year. W. J. Treme, market research analyst, Laclede Gas Company, is the current Chairman. The Vice Chairman is P. F. Platt, senior rate assistant, Public Service Electric & Gas Co.

Responsibility for keeping abreast of developments concerning gas industry employee relations rests with the Personnel Committee. This group is composed of personnel executives of gas companies representing a cross-section of Association company membership. Joseph A. Reynolds, manager, Personnel Dept., The Brooklyn Union Gas Co., is Chairman. The Vice Chairman is John H. Hayes, personnel director, Equitable Gas Co. Continuing projects of major interest to the industry include surveys on employee benefits and fringe labor costs, absenteeism due to illness, and wage data. The Committee is also concerned with matters relating to supervisory and executive development, and directs the Task Committee on College Recruiting.

The Purchasing and Stores Committee, headed by Chairman Vincent C. Parkes, assistant purchasing agent, El

Paso Natural Gas Co., and Vice Chairman Harold E. Wade, general storekeeper, The Peoples Gas Light & Coke Co., studies all phases of purchasing, receiving, protecting, storing and disbursing materials, supplies and equipment. A major activity of the committee is the promotion of the standardization of materials, supplies and equipment, particularly in standardized packaged quantities and improved shipping containers. The publication of materials handling methods developed within the gas industry is a continuing project. Each year the committee is host to gas industry purchasing and stores personnel at its annual workshop held in conjunction with the Section's Annual Conference.

A very active committee of long standing is the Rate Committee, chaired by F. A. Knecht, manager, Rate Research Dept., Baltimore Gas and Electric Co. Vice Chairman is F. V. Barnett, rate engineer, United Gas Pipe Line Co. This group conducts research on problems relating to gas company rate design and administration, and analyzes the impact of rates on load growth and financial results. It supervises the publication of the "A. G. A. Rate Service" and recently published a rate textbook, "Gas Rate Fundamentals", a definitive work in this field.

Facts and figures

(Continued from page 18)

the current rate new non-farm homes started during 1960 will be slightly under 1,250 million, about 200,000 less than in 1959.

Shipments of all major gas and competitive appliances declined during September, as well as during the eight-month period ended August 31. However, there is one bright spot in the gas appliance industry this year. Gas dryers have accounted for over one third of all

shipments of these appliances thus far during the calendar year, and they are continuing to increase their share of the dryer market. Since 1950 the ratio of competitive sales to gas dryer sales has steadily declined from four-to-one to the current level of less than two-to-one.

Good Samaritan

(Continued from page 5)

had to be joined together to form Rest Homes.

While some professional craftsmen were used, much of the work on the project has been done by residents. Working for modest wages to supplement their retirement income—or simply donating their services—ex-carpenters, ex-painters, and ex-wallpaper hangers among the residents, whose physical condition would permit, pitched in and took over much of the renovation work.

The theme of Good Samaritan Village, therefore, is self-help. The residents who are in good health and remain ac-

tive, get satisfaction from helping each other and becoming engaged in community activities. As a result of this mutual cooperation, the Village has progressed much more rapidly than would otherwise have been possible.

Most of the 50-acre section of Spencer Park originally purchased by The Good Samaritan Society is now occupied. Some of the original buildings have not yet been renovated, but work is in progress. The larger buildings are rapidly being converted to provide the facilities necessary for the growing population of elders.

Now completed are a chapel for church services, meeting and dining rooms for parties and special gatherings, a library, a hobby shop for the men and

a beauty parlor.

A striking contrast is afforded by the buildings in their original condition and those which have been renovated, newly redecorated and equipped as apartments.

Walking down the streets separating the various tiers of buildings, one is impressed by the neat and clean appearance of the apartments themselves—the countless varieties of flowers and shrubs surrounding the doorways, the little flower and vegetable gardens in the back yards, the well-kept lawns. It hardly seems possible that these meticulously kept apartments with their flower beds and green lawns could have been resurrected from the run-down, weed-entangled con-

crete block structures that originally stood here.

Each structure contains from four to six apartments. Each apartment consists of a 10' x 10' kitchen, a 10' x 15' living room, a small bathroom with commode and stall shower, and from one to three bedrooms with storage and closet space.

Rentals for the apartments range from \$27 to \$40 per month, depending upon the number of bedrooms, with gas and electricity extra. These are the only charges to residents who merely rent living facilities in the Village and do not require personal or medical care.

All the buildings and apartments are heated by gas—the larger buildings by furnaces, and the individual apartments by Warm Morning gas heaters. Each apartment has an automatic gas water heater, and more than 95% of them are equipped with gas ranges furnished by the occupants.

Good Samaritan Village offers a complete retirement service with various levels of care, including:

1. 1-to-3 bedroom apartments for couples or individuals who are self sustaining and who require merely the companionship of others in their age group.

2. Similar apartments for those who can maintain their own households but require assistance from a "house visitor" who will drop in each day to help with

household duties and meal planning.

3. The same living arrangements as above, but with provisions for residents to take one or more of their meals in a central dining room. This diet supervision enables residents to live longer and more comfortably in their own apartments.

4. A centrally located rest home providing personal care under medical supervision for those persons who can no longer maintain their own apartments, or who need help with feeding, dressing, walking, etc.

5. An Infirmary, also under medical supervision, for those in need of skilled medical and nursing care.

Three separate buildings house the Rest Home and Infirmary. Each building has been constructed by joining together four of the one-story apartment buildings. Each has its own kitchen and dining facilities, but is designed to suit best the particular needs of its occupants.

The building which houses the persons requiring frequent care but able to get up and move about, is called Villa Rest. Villa Rest includes a large dining hall and a large-window "solarium" in which the old people can gather to enjoy the sunlight and activity on the street outside.

The second building is called Villa Hope. It serves as one portion of the Infirmary, housing persons with chronic

illnesses or conditions that prevent them from walking, bathing, or feeding themselves.

The third building, for the most seriously ill, is called Villa Peace. The patients here need constant medical attention. Many of them are under the care of their own physicians.

Patients in the Rest Home and Infirmary pay different rates, depending upon the extent of services they need. Regardless of the level of care needed, the prices charged to residents are substantially less than those of private nursing homes and hospitals, and therefore compatible with the limited retirement income of the patients.

With the 50-acre tract now approximately four-fifths occupied, Reverend William Goldbeck is already making plans for the acquisition of the additional 30-acres of Spencer Park. He looks ahead to the time, not far off, when The Good Samaritan Society will purchase the remaining 30 acres, providing Good Samaritan Village with buildings that will hold an additional 350 apartments.

Leo Nelson, Clarence Johansen, and Frank Soldan, of Kansas-Nebraska Natural Gas Company, have more than a professional interest in Good Samaritan Village. Theirs is the personal interest and inspiration felt by all who have participated in this remarkable undertaking.

Industrial relations

(Continued from page 14)

quire tests for all jobs but that it might, within its discretion, use the testing procedure to determine the qualifications of applicants on some jobs. In the absence of any contractual prohibition, Mead said it might employ tests in determining the factor of relative ability. It did not dispute an employee's right to process a grievance if he felt the test has been administered arbitrarily or graded unfairly. Mead regarded testing as preferable to relying exclusively on the judgment of supervision.

Mr. Dworkin remarked that an examination of the contract provisions relied upon by the union and the reasoning advanced had failed to establish that the company was prohibited from the use of reasonable tests. The progression system providing automatic wage increases within the rate range is not related to the question of an applicant's right to succeed to an available job. He said:

"While the company has not previously employed the testing procedure in determining an applicant's qualifications within the framework of the con-

tract, this does not have the effect of an established past practice which would serve to ban the use of the testing program. Since the responsibility of determining the relative rights of applicants is primarily vested in management, it may employ proper tests in arriving at a fair decision in each case."

Mr. Dworkin said a contract provision that gives an inexperienced employee a 30-day probationary period if accepted for a higher-rated job does not make it mandatory that the senior employee be given the job on a trial basis. He also said that the evidence leaves little doubt that the grievant was well qualified on the basis of experience, skill, and ability for the maintenance helper job. But in the light of the evidence and the contract, the company's request for a test was fair and reasonable, and the grievant should have complied with it.

Mr. Dworkin noted that the grievance did not involve any questions of the nature of the test or the manner in which it was to be administered. The results of a particular test, he said, are not necessarily conclusive. An employee's right to succeed to a job may be protected through the grievance procedure. In the light of the foregoing,

Mr. Dworkin set forth the following principles, which have been deemed applicable to this case:

1. In the absence of contract prohibition, an employer has the right to institute aptitude tests in determining an applicant's qualifications for a job opening.

2. An employer may exclude from consideration an applicant who declines to take a test.

3. Any written or oral test should be reasonably related to the duties required of a particular job and reasonably designed to measure the applicant's aptitude, skill, and ability.

4. The test should be fairly administered and graded, and the results should be evaluated and appraised together with other relevant factors.

5. The claim of any employee that the tests have been administered in an arbitrary manner and that the results have been applied unfairly is subject to the grievance procedures.

6. The use of tests is designed to help management to determine the relative ability of job applicants and does not deprive an employee of the right to a job in the event he can demonstrate his ability to perform the duties in a capable manner.

Liquid natural gas storage standards planned

THE A. G. A. Chemical and Engineering Committee Liquid Natural Gas Task Group has been designated to develop engineering standards for the storage of liquid natural gas. This will be done in view of the fact that the U.S. Bureau of Mines team that investigated the 1944 fire in Cleveland, Ohio, has recommended that clearance greater than one-half mile be provided between the boundary of a liquid natural gas plant and the nearest inhabited building.

It is the feeling of the committee that reappraisal of the Cleveland fire and engi-

neering developments since that time provide a basis for believing that clearance substantially less than one-half mile may be safe. The discussion was primarily concerned with methods of obtaining scientific data to affirm this belief.

To implement this program, the committee has voted unanimously to recommend that the A. G. A. Gas Operations Research Committee appropriate funds for model fire research. It was estimated that such a program would cost \$25,000 to \$35,000 and that the work might be accomplished in one year.

Building councils to study electric home heating

A FIELD investigation of electrically heated houses is one of two research projects to be conducted by the Small Homes Council-Building Research Council of the University of Illinois as a result of two grants made to the university. The other project will involve the designing and re-evaluation of components for residential construction.

The Commonwealth Edison Company, of Chicago, Ill., is sponsoring the electrical heating study. Both projects will be directed by Rudard A. Jones, research professor of architecture and director of SHC-BRC. Donald E. Brotherson, research assistant professor of architecture, is chief investigator in the heating study.

Information concerning the relationship

between the amount of electricity actually used by a family in an electrically heated home, with calculated estimates of consumption of electrical energy and heat loss for the same home, will be sought in the study.

Ten electrically heated houses have been selected for study, and data on the house and the family occupying it will be collected in the preliminary part of the investigation. The structure of the house, house plan, orientation of the house, size of family, and family activities related to the use of the house are among the factors to be considered. Each house will be equipped with instruments to obtain readings of indoor and outdoor temperatures, as well as actual consumption of electricity for heating.

Operation Cryogenics demonstrates new steel for liquefied gas storage

A NEWLY DEVELOPED steel for the storage and transportation of liquefied gases at temperatures as low as -320°F . has made a dramatic debut in a technical testing program called Operation Cryogenics.

The tests on the newly developed material known as nine per cent nickel steel have been conducted at the Fairless works of United States Steel Corporation. The program is a cooperative venture of the International Nickel Company, Chicago Bridge and Iron Company, and the United States Steel Corporation.

On the first day of the two-day testing program, a 6,800-pound, nine per cent nickel steel rectangular vessel, simulating a type used for shipboard transportation of liquefied gas, was filled with liquid nitrogen and subjected at -320°F . to severe shock by a 4,340-pound "headache" ball. It was tested, with and without pressure, under repeated blows exceeding 80,000 foot pounds.

The second day's program involved the testing of a vessel simulating a type that might be used for land-based storage and transportation of low-temperature gases. A nine per cent nickel steel cylindrical vessel, four feet in diameter and thirteen feet in over-all length, containing liquid nitrogen, was pressurized to failure at -320°F .

A specific application that holds great promise for the new material concerns low-pressure vessels for the transportation and storage of liquid methane (nationally and internationally) by the oil and gas producing industries. There are attractive potentials in the storage and distribution of liquid oxygen

and nitrogen by producers of liquefied gas.

Of the liquefied gases involved, oxygen is by far the most important. The largest users, such as steel mills, chemical plants, and missile testing and launching sites, have liquid oxygen facilities from which they draw oxygen as it is required. About half of all oxygen produced is used by steel mills that have huge production plants on their property.

Tells gas-versus-electric story

A NEW MANUAL, *Comfort in Whole House Heating*, prepared to answer the many questions posed about gas versus electric heating, has been published by the Southern Gas Association, Dallas, Texas.

Designed as an education piece, the manual may be used to inform gas company personnel, heating dealers, and heating equipment salesmen of the factual story of heating with electricity and of how it compares with gas "fresh air" heating. As a consumer piece, it may be left with prospective customers.

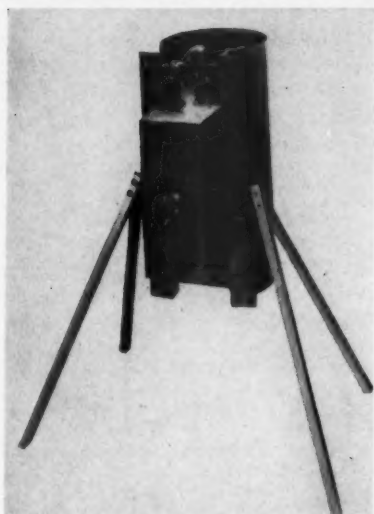
Prepared under the direction of SGA's heating and air conditioning committee, the four-color 16-page manual compares the two home heating methods in layman's language.

Single copies may be ordered from SGA for \$1.50 each. For information on quantity orders write to SGA, 1524 Life Building, Dallas 2, Texas.



Engineers make final checks as nine per cent nickel steel pressure vessel is filled with liquid nitrogen at -320°F . Part of Operation Cryogenics, the test demonstrated technical advantages of nine per cent nickel steel vessels for safe, economical transportation and storage of liquefied gases

Coast Guard buoys use thermoelectric power



Here is the heart of the thermoelectric generator system to be used by the coast guard. The steel flanges are for attaching unit to a tower structure

DEVELOPMENT for the U. S. Coast Guard of a low-power thermoelectric generator

system—an automatic power plant with no moving parts—designed to power land-based and offshore aids to navigation (buoys) has been announced. Three of the units, which can operate continuously and unattended for one year on \$15 worth of propane gas, have been ordered by the coast guard for evaluation at the Curtis Bay field testing and development unit in Maryland. The first unit was recently exhibited by the coast guard in connection with the sixth International Technical Conference on Lighthouses and Other Aids to Navigation.

The new thermoelectric generator, which converts the heat of burning gas directly into electricity automatically provides continuous power to a flashing light at an average power output of five watts. Many navigation lights and buoys currently used along the 90,000 miles of U. S. tidal shorelines and navigable inland waterways are powered by batteries that must be recharged or replaced frequently.

The new generator is based on the design of the first commercially available thermoelectric generator introduced last March by General Instrument. The coast guard generator weighs 20 pounds, is 20 inches high, and employs thermopiles of semi-conductor elements.

Joint personnel seminar airs labor relations, job training problems

A PERSONNEL SEMINAR, sponsored by the Pennsylvania Gas Association and the New Jersey Gas Association, with the collaboration of the A. G. A. Personnel Committee, was held in Philadelphia, Pa., November 15, 1960. The all-day session highlighted elements of job training and labor relations. More than 170 industry participants represented 34 companies from 12 states.

Edward H. Smoker, president of PGA, and Ralph E. Martin, who represented W. Daniel

Williams, president of NJGA, welcomed the group. Mr. Williams was unable to attend the meeting.

Edmond A. Scotch, assistant to the director of industrial relations, Philadelphia Gas Works division of The United Gas Improvement Company, presided as chairman at the morning session. Chairman for the second half of the program was Joseph A. Reynolds, manager, personnel department, The Brooklyn Union Gas Company.

The area of job training was covered in

Incinerator renamed disposer

HAROLD MASSEY, president of the Gas Appliance Manufacturers Association, has announced that one of the divisions of the association has been renamed.

The board of directors of GAMA at a meeting in October, 1960, voted to approve the resolution of the gas incinerator division and to change the name of that division to the automatic gas disposer division. The change was effective immediately.

A. G. A. wins ASAE first prize

A G. A. has been awarded the first-place blue ribbon for use of color in the 1960 "Idea Fair" of the American Society of Association Executives. The winning entry featured the 1960 Promotion Plan Book, the A. G. A. Convention advance program, and special mailings.

IGT increases seats to 40

THE BOARD of trustees of the Institute of Gas Technology, Chicago, Ill., voted to increase its number from 28 seats to 40 at its recent annual meeting. The new positions were created because of the widening scope of IGT activities.

three segments, with William J. Hladick, York County Gas Company, presenting the problems and experience in training men for customer service. Their program, now entering its second year, appears to have benefited public relations, to have improved employee attitudes, and to have done so at an expense that is justified.

Selection and training of personnel for electronic data processing was the area undertaken by Raymond E. Harbaugh, Philadelphia Electric Company.

Dwight A. Dundore, Philadelphia Gas Works division of UGI, explored the needs and methods involved in training operators for peak shaving production.

Arthur J. Podesta, Pennsylvania Gas and Water Company, spoke on "The Small Company and the Large Union." The contrast between the extravagant promises of organizers and the real gains under collective bargaining were described by Mr. Podesta. The line-up of membership in their units today is the same as it was eight years ago, he reported.

The afternoon session brought before the meeting a distinguished group of panelists. Addressing the assembly on significant aspects of their firsthand experience were Charles W. Provonchee, executive vice president, Providence Gas Co.; Francis R. Leonard, manager, industrial relations department, Laclede Gas Co.; Carroll D. James, industrial relations manager, gas department, Public Service Electric and Gas Co.; and Charles W. Uhlinger, director of labor relations, Columbia Gas System Service Corp.

Vaughan O'Brien, secretary of the A. G. A. General Management Section, was among those in attendance.



Members of the afternoon panel that discussed "The Strike in Retrospect" at the PGA-NJGA seminar were (l. to r.) Charles W. Provonchee, Providence Gas Co.; Francis R. Leonard, Laclede Gas Co.; Carroll D. James, Public Service Electric and Gas Co.; Charles W. Uhlinger, Columbia Gas System Service Corp.

Pitt conference hears Walker

HAROLD S. WALKER, JR., assistant to the managing director of A. G. A., was a featured speaker at the seventh Pitt Conference on Business Prospects held recently in Pittsburgh, Pa. In a program designed to inform delegates to the conference of the outlook for specific industries, Mr. Walker was the representative for the natural gas industry. Other industries represented on the program were steel, coal, chemicals, and construction.

Issue December publications

STATISTICS

- Monthly Bulletin of Utility Gas Sales, August, 1960. By subscription, \$1 per year. Cat. no. 60/S 8.
- Monthly Bulletin of Utility Gas Sales, September, 1960. By subscription, \$1 per year. Cat. no. 60/S 9.
- Monthly Bulletin of Utility Gas Sales, October, 1960. By subscription, \$1 per year. Cat. no. 60/S 10.
- Monthly Bulletin of Utility Gas Sales, November, 1960. By subscription, \$1 per year. Cat. no. 60/S 11.
- Quarterly Report of Gas Industry Operations, Third Quarter, 1960. By subscription, \$1 per year. Cat. no. 64/S-3.
- Gas Load Forecasting Methods (1956). Free. Cat. no. 67/S.
- Load Characteristics of Gas Heating Customers, Report 4. \$1.50 each. Cat. no. 68/S.
- Procedures Utilized in Analyzing the Effects of Changes in Business Conditions on Gas Company Sales. Free. Cat. no. 69/S.

OPERATING

- Progress of Diesel Engines and Passenger Cars, by Karl F. Kalsow. 25 cents each. Cat. no. DMC-60-104.
- Management's Responsibility for Safety, by Hall M. Henry. 25 cents each. Cat. no. OS-60-2.
- Operating Section Proceedings for 1960. \$15 each. Cat. no. OP-60-P.
- Operating Section Reports, by J. T. Innis. Free. Cat. no. OS-60-1.

COMMERCIAL AND INDUSTRIAL PROMOTION

- What Else Can Gas Do? Reprint from *Institutions* magazine. 25 cents each. Cat. no. 52/C.

PREMIUMS AND PRINTED MATERIALS

- Catalog of A. G. A. Premiums and Sales Promotion Aids. \$2 each. Cat. no. 37/6D.

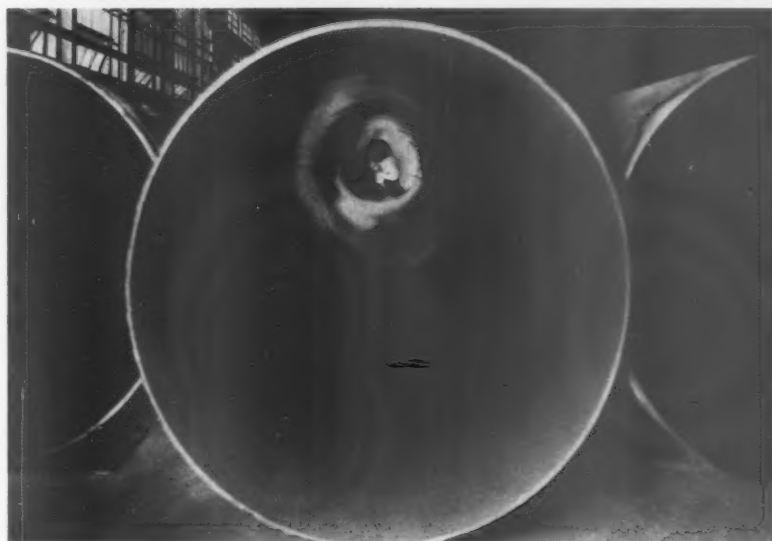
ACCIDENT PREVENTION

- Twelfth Annual Accident Prevention Conference papers. \$1 each. Cat. no. 49/AP.

HOME BUREAU

- Famous First Families of Stage and Screen Cook with Gas, by Southern California and Southern Counties Gas companies. 25 cents each. Cat. no. 86/K.

A. O. Smith process produces smooth surface



First permanent installation of modern equipment for the internal coating of large-diameter line pipe was recently established by A. O. Smith Corporation at its plant in Milwaukee, Wis. To date independent contractors have handled internal coating operations at a plant site or in the field

IGU admits Poland, discusses appliance standards

THE COUNCIL of the International Gas Union met recently in Copenhagen, Denmark, under the chairmanship of B. M. Nilsson, Swedish president of the union.

The Polish Gas Association was admitted as a new member of the union during the course of the meeting.

The technical problems of the interchangeability of gases were discussed, as well as the problems raised by the standards requirements of gas appliances, which are soon to be standardized in the six countries of the European Common Market.

Cite Minneapolis PR project

THE A. G. A. Bureau of Public Information recently mailed to member companies a booklet describing the results of a new and unique competition launched by Minneapolis Gas Co., Minneapolis, Minn., for students of architecture at the University of Minnesota.

This booklet was mailed by the utility to all chapters of Alpha Rho Chi, a national architectural fraternity, and to heads of schools of architecture across the country.

An outstanding example of public relations in action in the gas industry, this unusual project provides recognition for the architectural profession, thereby enhancing the prestige of the gas industry in the eyes of the nation's planners and builders. The project is also an effective vehicle for building understanding and appreciation of the company as an active force for community and educational betterment.

Companies interested in establishing a similar project may address inquiries to Robert F. Calrow, Minneapolis Gas Company, 739 Marquette Ave., Minneapolis, Minn.

Announcement was made of the publication of general statistics of the gas industry and of a vocabulary of the gas industry in eight languages.

According to R. H. Touwaide, general secretary of the union, studies are now being undertaken in the field of safety devices for domestic appliances. Also reports on new technical developments are being prepared for the Economic Commission for Europe in Geneva, Switzerland, as well as for the Organization of European Economic Cooperation in Paris, France.

U. S. chefs win with gas



Fried Chicken Maryland, a first-prize-winning recipe at the recent 10th Culinary Olympics in Frankfurt, West Germany, was prepared on a gas stove

Arden named as chairman of Freedoms Foundation committee

THOMAS T. ARDEN, president of the Robertshaw-Fulton Controls Co., Richmond, Va., has been named chairman of the national corporations committee for the Freedoms Foundation at Valley Forge, Pa.

Mr. Arden will head a group of prominent businessmen seeking support from the nation's corporations to expand the national awards program of Freedoms Foundation and

to help to build and to equip an American freedom center at Valley Forge. The foundation is seeking \$2.5 million from corporations, individuals, and foundations; \$1.5 million of it will be used to build the center.

President Eisenhower is honorary chairman of the foundation, and the Honorable Herbert Hoover is honorary president. Its trustees and board of directors include more

than 60 prominent industrialists, financiers, retired military leaders, merchants, clergymen, educators, jurists, editors, and publishers. The sole objective of the foundation is to encourage Americans to understand and to defend the rights and freedom they enjoy as citizens and to accept the responsibilities of free people interested in maintaining freedom.

Northern Natural announces construction of \$9 million propane plant

CONSTRUCTION of a propane extraction plant at Bushton, Kans., by Northern Gas Products Company, a new wholly owned subsidiary of Northern Natural Gas Co., Omaha, Nebr., has been announced.

The project will include an extraction plant, estimated to cost in excess of \$9 million, and liquid salt cavern storage facilities near Bushton.

P. A. Gass, president of the new subsidiary, has said that the plant is capable of processing 900 million cubic feet of natural gas per day.

"This plant will be capable of extracting propane, butane, isobutane, ethane, and some natural gasoline," said Mr. Gass.

These products will be made available to retail and wholesale distributors of liquefied

petroleum gases, to chemical processors, to gas utilities, and to industrial plants. Mr. Gass said that there are substantial markets for liquefied petroleum products in the Northern Plains and that they are growing.

Northern has filed an application with the Federal Power Commission to construct and operate pipeline facilities to increase its pipeline capacity.

Southwestern Legal Foundation sponsors discussion of oil, gas, taxes

LECTURERS from five states and the District of Columbia will address the 12th annual institute on the law of oil, gas, and taxation that will be sponsored by the Southwestern Legal Foundation in Dallas, Texas, February 8 through 10, 1961.

David T. Searls, vice president and general counsel for Gulf Oil Corporation in Pittsburgh, Pa., will discuss the decision of the Federal Power Commission in the Phillips Petroleum Company case and the effect on producers of the commission's statement of General Policy 61-1 as amended.

Other speakers will be Willard W. Gatchell, Washington, D. C., attorney and former general counsel for FPC, "Some Basic Factors and Trends in Some Phases of Public

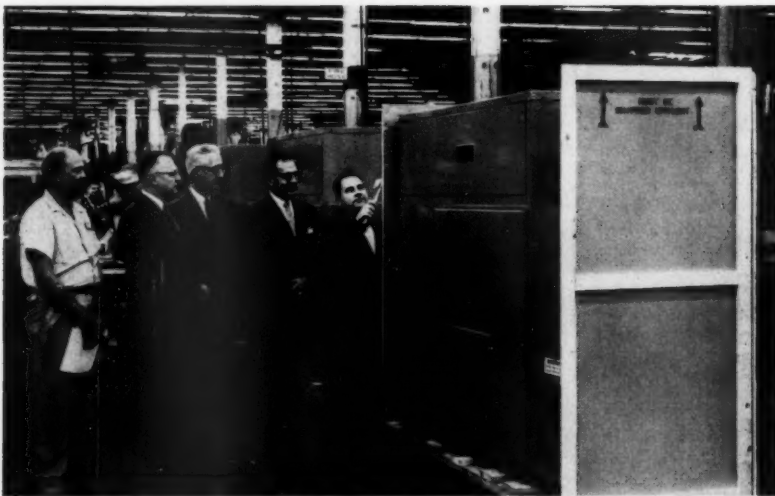
Utility Law"; William J. Holloway, Jr., Oklahoma City, Okla., attorney, "Some FPC Problems Encountered in General Oil and Gas Practice"; and Washington, D. C., attorney William P. McClure, "Sales of Gas Leasehold Interests." "Oil and Gas Interests Held by Fiduciaries" will be the subject of Frank L. Mallory, Los Angeles, Calif., attorney.

Also to speak are Houston, Texas, attorneys James Noel, "Shut in Gas Well Payments," and Robert A. Shepherd, Jr., "Some Problems of Administering Oil and Gas Properties Having Large Numbers of Owners," and Richard J. Gonzalez, director of finance and economics for Humble Oil and Refining Company in Houston, "Energy and Economic Progress."

Taxation problems in oil and gas will be the theme for the last day's session. Subjects and speakers will be "Oil and Gas Tax Problems of Fiduciaries," R. N. Gresham, San Antonio, Texas, attorney, and Marvin Collicie, president of the National Bank of Commerce, Houston; "Partnerships and Carried Interests and Other Sharing Arrangements in Oil and Gas Operations," Joseph P. Driscoll, Dallas attorney; and "Special Depletion Problems Relating to Gas Production," E. R. Gilpin, attorney from New York, N. Y.

Copies of the program and additional information may be obtained from Southwestern Legal Foundation, Hillcrest at Daniels, Dallas 5, Texas.

Arkla's new absorption-type air conditioner, 500C, introduces new line



Checking a new Arkla 500C are (l. to r.) Allen Hay, quality control inspector; Mahlon Lowell, superintendent of manufacturing; Philip Anderson, vice president-engineering, research, and development; Donald W. Weir, vice president and director; Robert K. Spear, assistant to Dr. Anderson

ARKLA Air Conditioning Corp., Little Rock, Ark., has begun production on its new Sun Valley model 500C gas air conditioning

unit. The versatile three-and-a-half-ton model is the first in a new line of gas-fired, absorption-type, chilled-hot water central air con-

ditioning systems to be manufactured by Arkla.

"With the Model 500C and subsequent units, we are utilizing the proven no-moving-parts heat absorption principle developed and advanced by Arkla and pioneered by Servel, Inc., its predecessor, in an entirely new air conditioning application," said W. R. Stephens, president of Arkla.

The Arkla 500C, rated at 42,000 Btu cooling and 96,000 Btu heating, permits for the first time the remote outside installation of a complete year-round combination gas cooling-heating system and requires no usable interior floor space. It circulates chilled or hot water, depending on season, to a fan-coil-filter assembly in a closet, attic, crawl space, or other indoor location.

In addition to a conventional forced-air central system with a wide variety of duct and coil arrangements, the Model 500C makes possible individual room control, baseboard radiation, and ceiling or floor radiation.

The new Model 500C retains the operating economy and constant efficiency of liquid cooling while eliminating the need for a separate evaporative cooler. The evaporative cooler and related equipment are compactly encased inside its all-weather panels with the refrigeration and heating system.

Wisconsin utilities meet

A TOTAL of 552 delegates attended the recent annual operating and sales convention in Milwaukee, Wis., of the gas and electric sections of the Wisconsin Utilities Association.

A highlight of the two-and-a-half-day conclave was an all-section joint meeting. That session heard challenging addresses presented by Congressman Clement J. Zablocki, Congressman Melvin R. Laird, and WUA president Harry I. Miller. Concluding the day's joint activities were the annual dinner and traditional vaudeville show.

At the closing session of the convention, William J. O'Donnell, executive vice president, Wisconsin Light and Fuel Company, was appointed chairman of the gas operating section. He has succeeded L. A. Lenz, assistant gas manager, Wisconsin Michigan Power Company. Ernest F. Semrad, vice president of supply and distribution, Milwaukee Gas Light Company, was appointed vice chairman to succeed Mr. O'Donnell.

Rolla N. Wilson, merchandise manager, Northern States Power Company, was appointed chairman of the gas sales section. He has succeeded Philip E. Casper, assistant vice president-sales, Milwaukee Gas Light Company. H. S. Turkelson, district manager, Wisconsin Natural Gas Company, was appointed vice chairman to succeed Mr. Wilson.

Among other speakers at the meeting was F. E. Hodgdon, director of the A. G. A. Laboratories in Cleveland, Ohio. The subject of his address was A. G. A. approvals.

Issue fire fighter booklet

THE NATIONAL Fire Protection Association has announced the publication of a booklet, *The Fire Fighter . . . and the Gas Company*, prepared by the gas utility companies of Massachusetts in collaboration with the Fire Chiefs Club of Massachusetts. It is designed as a guide for fire fighters who are called on to fight fires where gas utility services are installed or in buildings in which gas odors are supposedly present.

The booklet contains a brief background on natural gas, its characteristics, and how your gas company delivers gas to the communities it serves. It contains suggestions as to the handling of the occasional instances where fire fighters are called to places where gas odors or leaks are believed to exist, although no actual fire is involved. There is also basic information on typical gas house piping and meter and regulator installations made in accordance with accepted standards.

Fire News, the newsletter of NFPA, has recently requested from members details on fires in their communities in unattended, coin-operated self-service laundries. Preliminary evaluation of information received from members has shown that ignitions of lint accumulations and clothing in overheated dryers may be a potential hazard. Additional experience is needed to provide a sound basis for fire protection recommendations for self-service laundries.

Information on self-service laundry fires and requests for the booklet should be addressed to National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Gaslight glimmers on a Southern veranda



Gaslight on the veranda of the Silver Lake Country Club at Tampa, Fla., is provided by lamps installed by the west coast division of Peoples Gas System. The club uses a total of 20 gas lights, many of them for decoration and illumination in the dining room and around the swimming pool.

School pamphlets issued

THE INDUSTRIAL and Commercial Gas section of A. G. A. recently released two promotional pamphlets to general sales managers of member companies to assist them in school heating and air conditioning programs.

The first of these is *Gas Goes to School*, a booklet designed for distribution to school boards, Parent-Teacher Associations, and civic groups. The booklet presents the advantages of year-round gas air conditioning systems and stresses specific economic advantages of the gas-heated school.

The second pamphlet is a four-page direct mailing piece, *When You Plan to Build a School*. It condenses many of the ideas in *Gas Goes to School* and first appeared as an "impact" section for A. G. A. in *Nation's Schools* magazine.

The committees of the Industrial and Commercial section recently obtained prominent positions on the programs of the National Safety Congress and Exposition and of the engineering conference of the Technical Association of the Pulp and Paper Industry. These conferences were recently held in Chicago, Ill., and Jacksonville, Fla., respectively. Copies of papers presented at the meetings and of the school pamphlets may be obtained from A. G. A.'s Order Department.

Film catalogue published

THE LATEST edition of the catalogue of motion pictures and slide films available to gas companies from the A. G. A. film library has been published and made available to member companies.

One or two copies of the new booklet will be supplied to members free. More copies are available at 25 cents each. Orders specifying Cat. no. 36/GD, *Motion Pictures and Slide Films on Gas* may be directed to Order Department, A. G. A., 420 Lexington Ave., New York 17, N. Y.

O'Brien to distribute Arkla

THE S. J. O'BRIEN companies, New York, N. Y., have been appointed distributors for Arkla Air Conditioning Corporation.

At one time the world's largest Frigidaire dealers, the O'Brien companies have installed air conditioning in many leading hotels in Manhattan. According to Harold B. Hamilton, O'Brien's vice president in charge of sales, the firm is one of the world's largest refrigeration service organizations.

Cooks egg on a paper plate



It can be done, without burning the plate, on the new RCA Whirlpool Blanket-o-flame gas drop-in range. Low temperature heat control is provided by a built-in blower mechanism that provides air cushion between the flame and the cooking surface.

Officials attend recent openings of Robertshaw-Fulton Pennsylvania facilities



At left, Thomas T. Arden, president, Robertshaw-Fulton Controls Company, and guests inspect compressor at official opening of firm's Eastern Research Center, King of Prussia, Pa. At right, doing honors at opening of firm's new Thermostat division, Youngwood, Pa., is Christy Payne, Jr., Consolidated Natural Gas Company. Mr. Arden clasps his hand. Others (l. to r.): Harold S. Walker, Jr., A. G. A.; Frank Hodgdon, A. G. A. Laboratories; George Coulter, The Manufacturers Light and Heat Co.; Frank H. Post, Robertshaw-Fulton vice president and general manager of new division; Gilbert Smith, Equitable Gas Co.

Highlights of cases before the Federal Power Commission

Bureau of Statistics, American Gas Association

Certificate cases

● **Algonquin Gas Transmission Co.** has been granted temporary authority to construct a \$6,000 horsepower compressor station at Stony Point, N. Y., at an estimated cost of \$2.5 million. These facilities will deliver an additional 14.8 million cubic feet of natural gas per day (to be received from Texas Eastern Transmission Corp.) to 10 existing wholesale customers.

● **Coastal Transmission Corp.** has been authorized to construct natural gas facilities as needed from time to time to attach newly acquired supplies to its system. The total cost of the facilities to be constructed will not exceed \$1.5 million, and each project is limited in cost to \$300,000.

● **Panhandle Eastern Pipe Line Co.** has filed a budget-type application proposing to construct field facilities for new supplies of natural gas as needed from time to time. These facilities would not exceed a total cost of \$2.5 million, and individual projects would be limited in cost to \$500,000.

● **Southern Natural Gas Co.** has been authorized in a budget-type application to construct natural gas facilities as needed to attach newly acquired supplies to its system. The total cost of all facilities will not exceed \$3 million, with single projects limited in cost to \$500,000.

● **Tennessee Gas Transmission Co.** has been granted temporary authority to construct and operate natural gas pipeline facilities at a cost of about \$4.6 million. Approximately 51 miles of gathering lines will be constructed to tap more than 341

billion cubic feet of natural gas reserves from fields offshore Louisiana.

● **Texas Eastern Transmission Corp.** has received temporary authority to construct about 66 miles of pipeline loops between Texas and New Jersey and to install an additional 33,710 horsepower in four existing compressor stations at an over-all cost of \$17.6 million. These facilities will increase total sales capacity by about 51 million cubic feet of natural gas daily to 17 existing customers.

● **Transcontinental Gas Pipe Line Corp.** has been granted temporary authority to construct and operate natural gas facilities costing about \$15.8 million. These facilities, which include 77 miles of large-diameter loop pipeline and an additional 25,040 horsepower in eight existing compressor stations, will be built in Alabama, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Texas, and Virginia. The new facilities will provide about 13.2 million cubic feet of natural gas per day in additional delivery capacity to meet the 1960-1961 winter demand of 31 existing wholesale customers.

● **Transwestern Pipeline Co.** has been granted temporary authority to construct and operate about 24 miles of gathering pipeline and a 3,520 horsepower compressor station at an over-all cost of about \$2.5 million. These facilities will enable the company to purchase from United Carbon Company gas reserves estimated to be in excess of 40 billion cubic feet.

● **United Gas Pipe Line Co.** has been au-

thorized to build from time to time during 1961 facilities to make new direct industrial sales of natural gas. The total cost of construction will not exceed \$750,000, and the cost of each connection will be limited to \$200,000.

● **Washington Gas Light Co.** was recently authorized to construct about 16 miles of new pipeline in the Washington, D. C., metropolitan area to meet the increasing demand for natural gas. These facilities, estimated at a cost of \$3.8 million, will include the conversion to a transmission line of an existing five-mile distribution line in the Alexandria area.

Rate cases

● **Hope Natural Gas Co.** has filed a proposed \$3.6 million annual wholesale natural gas rate increase to become effective December 1, 1960. The company has proposed to change the rate for large general service from straight commodity rates to two-part demand and commodity rates based upon contract demand. An interruptible service rate would be inaugurated. In addition to recouping increased purchased gas costs and larger wage payments, the company has claimed a 10 per cent rate of return on its well-mouth properties and 6¾ per cent return on its other properties. Still pending are three previous rate increases totaling about \$11 million and being collected, subject to refund.

● **Texas Gas Transmission Corp.** has applied for a \$4.7 million or 4.4 per cent annual wholesale natural gas rate increase that it proposes to put into effect Decem-

ber 6, 1960, for about 70 utility customers in Arkansas, Illinois, Indiana, Kentucky, Louisiana, Mississippi, Ohio, and Tennessee. In addition to claiming a 6½ per cent rate of return, the proposed increase is intended to offset higher purchased gas costs and other increases in construction and operating costs. In another rate case, a settlement proposed by the company has been approved by the commission. The settlement has reduced a requested \$7.3 million annual wholesale rate increase to about \$5.4 million, an over-all annual increase of 5.5 per cent, and has allowed a 6½ per cent rate of return. Refunds will be made to 61 wholesale customers from November 1, 1959, when the proposed rates became effective.

● **Transcontinental Gas Pipe Line Corp.** has sought an \$8.3 million or 4.8 per cent annual wholesale natural gas rate increase that it proposed to put into effect November 17, 1960. The increase was to be applicable to 75 wholesale customers operating in Alabama, Georgia, Maryland, New Jersey, New York, North Carolina, South Carolina, Pennsylvania, and Virginia. The filing has been based on a general increase in all costs and the need for a 6½ per cent rate of return. A prior rate increase amounting to \$15.1 million annually has been reduced to \$12.1 million with commission approval. The difference, collected subject to refund

since November 18, 1959, must be refunded within 60 days, with interest at the rate of 6 per cent annually. Under the settlement the rate of return was set at 6 per cent.

SUMMARY OF INDEPENDENT GAS PRODUCER RATE FILINGS—SEPTEMBER, 1960

	Number	Annual Amount
Tax rate increases allowed without suspension	—	\$ —
Other rate increases allowed without suspension	29	477,508
Rate increases suspended	89	2,570,605
Total rate increases	118	3,048,113
Tax rate decreases allowed without suspension	1	2,961
Other rate decreases allowed without suspension	3	15,425
Total rate decreases	4	18,386
Total rate filings (all types)	626	—
Total rate filings acted on from June 7, 1954, to September 28, 1960	49,762	—
Rate increases disposed of after suspension (during month)	27	4,180,631
Amount allowed	—	4,003,153
Amount disallowed	—	—
Amount withdrawn	—	177,478
Rate increases suspended and pending at end of month	3,439	\$167,105,778

SUMMARY OF PIPELINE COMPANY RATE FILINGS—SEPTEMBER, 1960

	Number	Annual Amount
Increases under suspension at beginning of month	114	\$460,289,700
Increases suspended during month	3	4,200,200
Increases disposed of after suspension	5	25,232,000
Amount allowed	—	21,632,000
Amount disallowed	—	3,600,000
Amount withdrawn	—	—
Increases allowed without suspension	—	—
Increases suspended and pending at end of month	112	\$439,257,900

In other actions the FPC has adopted a decision filed by Examiner Binder authorizing Midwestern Gas Transmission Co. to sell natural gas to American Louisiana Pipe Line Co. The authorization allows the sale of up to 80 million cubic feet of surplus interruptible natural gas per day on an "as, when, and if available" basis at 28.33 cents per Mcf to be stored for use in peak periods by affiliates of American Louisiana.

Western Slope Gas Co. has been exempted from regulation under the Natural Gas Act pursuant to the terms of the Hinshaw Amendment. This makes a total of 126 companies to be exempted, either fully or in part, since the Hinshaw Amendment became effective March 27, 1954.

Better Copy competition for 1961 announced

MORE THAN 2,500 entries are expected to be submitted in the Public Utilities Advertising Association's 38th annual Better Copy Contest, according to W. L. Perdue, 1961 contest chairman.

Cited as the oldest advertising competition in the world, the contest is open to any business-managed utility, regardless of whether or not it is PUAA-affiliated. Manufacturing firms and holding companies not acting as operating utilities are not eligible.

"The 1961 competition," said Mr. Perdue, who is director of publicity, Kansas Power and Light Company, "contains 20 classifications. Included are those of direct mail, em-

ployee magazines, newspaper advertisements, radio and television activities, motion pictures, and car cards."

The deadline for receipt of all entries, except annual reports, is February 1, 1961. The annual report deadline is April 1, 1961. Mr. Perdue urged competing utilities to plan to order copies of the 1961 *Awards Blue Book*, in which all winning entries in the 1961 contest will be displayed.

PUAA member companies will receive copies of the 1961 rules in December, 1960. Other companies may obtain information from Mr. Perdue at the Kansas Power and Light Co., 800 Kansas Ave., Topeka, Kans.

A. G. A. fuel cell research progresses at IGT

A COMPLETELY gas-operated fuel cell power pack that will generate electricity directly from natural gas, water, and air is under development at the Institute of Gas Technology, Chicago, Ill. This research on fuel cells for domestic use is being sponsored by A. G. A.

"Development of natural gas fuel cells is now in the laboratory stage," said M. A. Elliott, director of the institute, "but progress is encouraging, and construction of prototype fuel cell batteries will begin in 1961."

An experimental six-cell natural gas battery was operated for members and trustees of the institute, at their recent annual meeting. This two-watt unit was built primarily to test novel cell components and to demonstrate the feasibility of using natural gas.

Dr. Elliott said that a natural gas fuel cell power pack producing about 10 kw. probably will be no larger than a gas furnace. The heart of such a unit will be a number of thin high-temperature cells that generate electricity by a direct electrochemical reaction.

Schedule ASHRAE meeting for February, 1961

THE SEMI-ANNUAL meeting of the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE) will be held at the Conrad Hilton Hotel in Chicago, Ill., February 13 through 16, 1961.

Concurrently, the 15th International Heating and Air-conditioning Exposition sponsored by ASHRAE will take place at the International Amphitheatre. Nearly 500 exhibitors plan displays for this show.

Compact refrigerator approved

NORCOLD, Inc., Los Angeles, Calif., has announced that another unit of its 1961 product line has received official A. G. A. approval.

The company said its Astral built-in Model A 160 A gas refrigerator, two cubic feet in size, has followed other Norcold products through A. G. A. test procedures and received a seal of approval.

Hastens liquid piping repairs



Repairs on pipelines operating at up to 100 psi are easy and flameless with a new method developed by Minnesota Mining and Manufacturing Co., St. Paul, Minn. Resin is injected into a tape mold

Personal and otherwise

Announce Laboratories' changes

E. HODGDON, director of the A. G. A. Laboratories, Cleveland, Ohio, has announced organizational changes in the testing and inspection departments.

A department of listing and approval services has been established under the supervision of C. F. Gertz, assisted by F. H. Miller, H. C. Clark, and J. H. Fitzgerald, section supervisors. This will relieve testing and inspection departments of many administrative duties, making possible better engineering services to manufacturer clients.

W. B. Pizzini, former assistant chief standards engineer, has been appointed chief test engineer, and S. L. Blachman has been assigned to the position of assistant chief test engineer. P. D. Lawrence and A. A. Kampman, department engineers, will supervise test sections.

T. S. Leitch, chief inspection engineer, will be assisted in the supervision of an actively expanded inspection program by A. L. Chabek and T. C. Wheat, who have become supervisory inspectors.

Samuel W. Horsfield, vice president, Long Island Lighting, retires after 33 years



S. W. Horsfield

SAMUEL W. HORSFIELD, vice president of Long Island Lighting Co., Mineola, L. I., N. Y., has retired from the company, for reasons of health after 33 years of service.

Mr. Horsfield joined the company in 1927 as superintendent of its Bay Shore gas works.

In 1953 he was made assistant vice president and gas operating manager, and in 1957 he

Morningstar elected treasurer

W. D. MORNINGSTAR has been elected as treasurer of Pacific Lighting Gas Supply Co., Los Angeles, Calif.

Mr. Morningstar, who was assistant treasurer and assistant vice president of the subsidiary of Pacific Lighting Corporation, has succeeded C. Edward Pearman, retired.

A graduate of Coe College and a certified public accountant, Mr. Morningstar joined the subsidiary in 1951 as administrative aid. He was named auditor in 1954, assistant treasurer and assistant vice president in 1959.

Yeager succeeds Leib

THE UNITED GAS Improvement Co., Philadelphia, Pa., has announced that Robert L. Yeager has been appointed operating manager of the Lancaster division and has succeeded Andrew J. Leib who has retired after 45 years of service. Edward J. Potts, Jr., has been appointed as superintendent of mains and services in the Lancaster division, it was also announced.

Mr. Yeager, who has been in Lancaster for two years as distribution engineer, joined the firm in 1949 as an engineer in the Lehigh Valley division and has served as staff engineer in Philadelphia and production superintendent in the Harrisburg division.

Andrew J. Leib started with the firm in the Luzerne County division at Hazleton, Pa., in 1915 as a meter reader. Moving successively through the positions of sales manager and district manager, he was appointed operating manager in 1945 of the Kingston and Hazleton districts and was transferred to the Lancaster division as operating manager in 1949.

Robertshaw elevates Wehrli



R. L. Wehrli

ROBERT L. WEHRLI, vice president and general manager since 1956 of Robertshaw-Fulton's aeronautical and instrument division at Anaheim, Calif., will move to Richmond, Va., on or about January 1, 1961, as vice president and assistant to the president of the corporation.

Mr. Wehrli has announced to employees of the aeronautical and instrument division that his successor as general manager of that division, effective immediately, is Raymond H. Heller. Mr. Heller has been serving in the division as director of field engineering and sales. Charles H. Unruh, advertising manager of the Anaheim division, has assumed Mr. Heller's previous duties.

Mr. Wehrli holds degrees in physics from Rensselaer Polytechnic Institute. He joined Robertshaw-Fulton in 1954 as director of research and development for the Anaheim division.

Mr. Heller holds a bachelor-of-science degree in engineering from the University of Nebraska. He joined Robertshaw-Fulton in 1952 as a process engineer at the Anaheim division and served as project engineer, field engineer, and chief field engineer before assuming his most recent duties in 1957.

Mr. Unruh, joined Robertshaw-Fulton in 1951 and has served in sales capacities with both the aeronautical and instrument division and the Grayson Controls division.

cracking plant his company built at Riverhead, N. Y. He also played a major part in the selection of equipment and engineering layout of the Glenwood Landing gas works' "cat-cracker," which, it is believed, was the world's first base load cracker.

A native of South Wales, Mr. Horsfield received his engineering degree at Monmouthshire School of Mines in conjunction with a five-year indentured engineering apprenticeship at Mountford Phillips and Co., South Wales. He came to the U.S. in 1925.

He is an accomplished machinist, electronics man, and painter of portraits and landscapes in oils.

Barrett, of Ebasco Services, and Vandeburg head World's Fair exposition firm



C. M. Vandeburg

THREE leading firms—Ebasco Services, Vandeburg-Linkletter Associates, and Walter Kidde Constructors—have announced the formation of V-E-K Associates. The new organization will provide all-inclusive exposition services and facilities for exhibitors at the 1964-1965 New York World's Fair.

V-E-K Associates will pool the three firms' experience in exposition planning, management, and design and construction. V-E-K's services will range from initial conceptual planning, design, and construction to the actual management of exhibits and the programming of shows and special events.

V-E-K Associates is jointly owned by Vandeburg-Linkletter Associates and Electric Bond and Share Company, the parent company of Ebasco Services. Electric Bond and Share recently acquired the controlling interest in Walter Kidde Constructors.

The presidency of V-E-K is held by C. M.

Vandeburg, president of Vandeburg-Linkletter Associates, an exposition master-planning and public-relations firm, whose principals include Art Linkletter, of TV and radio fame, and Admiral Robert B. Carney, former U.S. Chief of Naval Operations.

Named as executive vice president was William A. Barrett, Jr., director of facilities, community, and industrial planning for Ebasco Services. Vice presidents are A. Kingsley Ferguson, sales vice president of Walter Kidde Constructors, and John D. Cassidy, general management consultant for Ebasco.

Ham and Nabors, new Conoco vice presidents, to maintain existing headquarters

W O. HAM, JR., and H. F. Nabors have been elected as vice presidents of Continental Oil Co., Houston, Texas.

Mr. Ham will continue to make his headquarters in Houston and Mr. Nabors to make his headquarters in New York, N. Y.

Mr. Ham became associated with Conoco in 1943. He was promoted in 1959 to southwestern region general manager and recently returned to Houston as general manager of the domestic exploration department.

Mr. Nabors joined Conoco in 1955. Mov-

ing to Oklahoma City in 1955, he was assistant general manager and later general manager of the central region before transferring to New York this year as production manager for the foreign exploration and production department.

Houston gas men organize

HAROLD E. VAUGHAN, Transcontinental Gas Pipe Line Corporation, has been elected president of the newly formed Natural Gas Men of Houston, the first such organization in the Houston, Texas, area.

The association was formed for men directly and professionally connected with the natural gas industry in either production, marketing, transmission, or distribution. Its meetings are designed for both business and educational purposes and common interests and problems.

Other officers include H. L. McDonald, Pan American Petroleum Corp., first vice president; E. Rue Thomas, Trunkline Gas Co., second vice president; Lonnie E. Crawford, Humble Oil and Refining Co., third vice president; Jack Gale, Transcontinental Gas Pipe Line Corp., secretary; E. H. Fenner, Shell Oil Co., treasurer.

Miegl is Arkla chief engineer

K ALBERT MIEGL has been appointed chief engineer of Arkla Air Conditioning Corp., Little Rock, Ark., and Robert K. Spear has been named assistant to the vice president-engineering, research, and development.

Mr. Miegl has succeeded Phillip P. Anderson, who recently was promoted to vice president in charge of engineering, research, and development.

Mr. Miegl attended Evansville College and was graduated from Purdue University in 1949. He was employed by Electronics Research as an electronics engineer from 1949 to 1956 and was with Chrysler Corporation as a plant electrical engineer from 1956 until 1958, when he joined Arkla as a major development engineer.

Mr. Spear worked for Servel, Inc., after World War II, as a research engineer. He resigned in 1957 to take a position with Arkla as a major development engineer.

Columbia's Overbeck retires

JOHAN E. OVERBECK, vice president, engineering and research, of Columbia Gas System Service Corp., New York, N. Y., has retired after more than 44 years' association with the companies of The Columbia Gas System.

He joined The Ohio Fuel Gas Company in 1916 and in 1927 was transferred to the service corporation as senior measurement engineer.

In 1952 he was elected as assistant vice president and in 1955 was named a vice president of the service corporation.

Long active in A. G. A., Mr. Overbeck in 1953 was given the A. G. A. National Distribution Achievement Award in recognition of his contribution to the gas industry.

Watson becomes vice president



C. W. Watson

CHARLES W. WATSON has been elected as vice president-general administration of Philadelphia Electric Co., Philadelphia, Pa.

Mr. Watson joined the utility in 1931, following his graduation from the University of Pennsylvania as a civil engineer. His early assignments were in the electric generating department and included the positions of engineer of station operating, assistant administrative engineer, and superintendent of the station economy division. In 1957 he was named assistant to the president.

Breech joins Whirlpool board



E. R. Breech

ERNEST R. BREECH, former chairman of the board, Ford Motor Company, has been elected to the board of directors of Whirlpool Corporation. Mr. Breech, who will continue to serve Ford as a member of the product planning committee and as chairman of the company's finance committee, has filled the vacancy created on the 11-man Whirlpool board by the retirement of Maynard H. Murch. Mr. Murch had served as a director of Whirlpool for more than 36 years.

Mr. Breech was president of Bendix Aviation Corporation before joining Ford as executive vice president in 1946. He became Ford's board chairman in 1955.

Thagard elected vice president of Texas Eastern



W. T. Thagard

WT. THAGARD has been elected to the position of vice president of Texas Eastern Transmission Corp., Houston, Texas. His initial assignment will be to direct and expedite Texas Eastern's diversification activities in the field of carrying coal by pipeline.

Texas Eastern and Consolidation Coal Company are working on a joint project to carry coal by pipeline from West Virginia to electric utility companies on the Eastern

Walworth promotes Monkman



F. C. Monkman

WALWORTH Co., New York, N. Y., has appointed Forest C. Monkman as vice president, research and engineering.

Dr. Monkman joined Walworth in 1955 as research director. Previously he had managed the technical, sales, and business aspects for a materials laboratory that specialized in testing and developing high-pressure alloys.

He is a graduate of Massachusetts Institute of Technology, with a doctor-of-science degree. He specialized in high-temperature metallurgy. He also attended the Harvard business school.

Worthington names Nunlist



F. J. Nunlist

FRANK J. NUNLIST has been appointed vice president-operations of Worthington Corp., New York, N. Y.

In his new position Mr. Nunlist (since 1958 a group vice president of Worthington) will be responsible for the activities of the company's 16 domestic operating divisions in 10 states and regional en-

gineering and service activities. He will report to Walther H. Feldmann, president.

Mr. Nunlist first became associated with Worthington when the company acquired the L. J. Mueller Furnace Company in 1954. Subsequently he became executive vice president of Worthington's Mueller Climatrol division.

seaboard. The management of Texas Eastern now feels that this project has progressed to the point of requiring the direct supervision of an officer of Texas Eastern.

A graduate of Rice University, with a major in chemical engineering, Mr. Thagard has been associated with Texas Eastern since 1947 when he was employed as administrative engineer. When the company formed its department of plans and economic research in 1955 to explore areas of logical diversification for the company, he was promoted to direct the activities of that department. In May, 1958, when the activities of the department were expanded and reorganized as the coordinating and planning department, he was named manager.

Selzer elected vice president



W. W. Selzer

W. W. SELZER has been elected vice president in charge of marketing for Western Kentucky Gas Co., Owensboro, Ky.

Mr. Selzer, a veteran of 26 years' experience in gas industry sales and business promotion, will be responsible for the company's merchandising sales, gas air conditioning sales, advertising sales promotion, home service program, public relations, industrial development, service utilization, and training.

Bush elected at Rockwell



R. R. Bush

ROY R. BUSH, mid-western regional manager, has been elected a sales vice president of the meter and valve division of Rockwell Manufacturing Co., Pittsburgh, Pa. He will have headquarters in Pittsburgh.

Mr. Bush joined Rockwell in 1934 as a sales engineer. Since then he has served in the capacities of Tulsa district manager, of assistant product manager for valve sales, and of midwestern regional manager.

Camp is vice president

RICHARD W. CAMP has been elected a vice president of Arkansas Louisiana Gas Co., Little Rock, Ark. He will direct activities in the new Oklahoma-Kansas division of Arkla Gas.

Mr. Camp is former president of Consolidated Gas Utilities Corporation, which has become a part of Arkla Gas. He has been serving as manager of the Oklahoma-Kansas division, which encompasses territory formerly served by Consolidated.

Mr. Camp started his gas industry career in 1928 when he joined Consolidated as a geological engineer. He was elected vice president of the company in 1946 and president in 1954. He is a graduate of the University of Oklahoma.

Honolulu names Robb

RICHARD E. ROBB, industrial relations director of Honolulu Gas Co., Honolulu, Hawaii, has been named a vice president of the utility. David C. Vaughan has been appointed assistant secretary.

Mr. Robb, a graduate of the U.S. Naval Academy in 1939, has been with the gas company since 1949. He was assistant secretary and assistant treasurer and will retain the latter position.

After serving in World War II, Mr. Robb attended Stanford University where he received a master's degree in personnel and industrial relations. He was in charge of labor relations with the company.

Lynch becomes treasurer

RAY J. LYNCH has been elected as treasurer of Michigan Wisconsin Pipe Line Company and American Louisiana Pipe Line Company, both of Detroit, Mich.

Mr. Lynch joined the American Natural Gas Company, parent firm of the affiliated pipeline companies, in 1953 after several years with the accounting firm of Arthur Andersen and Company. He was named assistant treasurer of Michigan Wisconsin in 1955 and the following year was appointed first assistant treasurer. In 1957 he was named assistant controller.

A certified public accountant, he is a graduate of the University of Illinois.

Maire is general manager

EDWARD B. MAIRE, general manager of Robertshaw-Fulton Controls Company's Mairco division, Goshen, Ind., and former president of Mairco, Inc., which was acquired by Robertshaw in 1959, has moved to the firm's Bridgeport thermostat division, Milford, Conn., as general manager of that division and assistant vice president of the corporation.

Kenneth G. Kreuter has been appointed as director of engineering and R. W. Zollinger as manager, administrative services. Both are at the Mairco division in Goshen.

Mr. Maire is a graduate of the University of Iowa.

Names in the news—a roundup of promotions and appointments

UTILITIES

Curtis Park has been appointed assistant manager of the land department of Lone Star Gas Co. and Lone Star Producing Co. Former superintendent of leasing for the latter company, he has been with Lone Star for 29 years. Lone Star has also announced the appointment of **John P. Viglini** as chief engineer for the firm's transmission division. **A. B. Hemphill** has been named to succeed him as assistant chief engineer. Mr. Viglini has succeeded **R. A. Minter**, who has retired after 41 years of service. Mr. Viglini joined Lone Star in 1928 as a draftsman and has served in the capacities of assistant office engineer and senior engineer. Mr. Hemphill joined the firm in 1926 as a chainman. He had since 1945 served as a construction engineer.

New Jersey Natural Gas Co. has announced two promotions in the sales department. **William J. Miners**, former residential sales manager, has been named to the newly created position of general sales manager. He joined the company in 1952 and was formerly with Public Service Electric and Gas Co. **Albert G. Thompson**, commercial representative in the central division, has been appointed industrial representative, which includes the promotion of gas sales to the company's industrial customers and cooperation with governmental and other agencies in area development. He has been with the company since 1926.

Dean William Caple, supervisor of the corporate department of Rochester Gas and Electric Corp., has been elected assistant secretary for the company. He joined the firm in 1948 as an accountant after graduation from the University of Rochester, where he majored in economics.

Robert C. Horn has become personnel director of the Wisconsin Public Service Corp. He has succeeded the late **Robert E. Phenicie**, who passed away last summer. He joined the company in 1929 as a cadet accountant. In 1957 he was placed in charge of the accounting offices in five divisions of the utility, as well as of the machine accounting and stores and warehouse accounting for the entire corporation.

S. Robert Blair has been appointed as executive assistant to the vice president and manager of Alberta and Southern Gas Co., Ltd. and Alberta Natural Gas Co. Formerly gas operations engineer for the two firms, he has succeeded **John G. Smith**, who was recently transferred to the headquarters staff of Pacific Gas Transmission Co. Mr. Blair is also a member of the board of directors of Alberta and Southern.

Raymond J. Meurer has been appointed as advertising and sales promotion manager of Michigan Consolidated Gas Co. An attorney and specialist in radio and television, he was formerly Michigan counsel for American Broadcasting Station and general counsel for WXYZ and was an officer and director of Lone Ranger, Inc. In

his new post he will supervise all company advertising and window display activities and Detroit district sales promotion.

Howard W. Weile, a 35-year veteran in the Coast Valleys division of Pacific Gas and Electric Co., has been named as the new division manager. He has succeeded the late **T. Emmet Ward**. Mr. Weile's utility career began in 1923 when he joined the accounting department of the old Western States Gas and Electric Co. Since 1957 he has been general services manager of the division.

Northern Illinois Gas Co. recently named **Spencer R. Milliken** as research director for the utility to succeed **Earl L. Tornquist**, who will retire April 1, 1961. Mr. Milliken was formerly manager of metallurgical and minerals research for Foote Mineral Co. He received his bachelor's degree in chemistry at Georgia Institute of Technology, his master's degree at Emory University, and his doctorate in fuel technology at Pennsylvania State University.

Honolulu Gas Co. has appointed **Maynard B. Standley** as Honolulu residential sales supervisor. Mr. Standley was most recently sales manager for the Eastern division, Cascade Natural Gas Corp. He has replaced **William Bonner**, who has moved to Kauai to become branch manager. The present manager of that branch, **Lester West**, has become branch manager on Hawaii as **J. R. Detton**, now Big Island

manager, concentrates on specialized duties outside the Hilo area.

MANUFACTURERS

Larry Rose, of the sales staff of the Grayson Controls division of Robertshaw-Fulton Controls Co., has been assigned to the Pacific southwest territory as sales representative for central heating controls. Before joining Robertshaw this year, he was associated with a California firm of heating contractors. The parent firm has also announced that **Richard A. Joslyn, Jr.**, export sales engineer in the International division, has been named assistant to the general manager of that division. Mr. Joslyn attended Iowa State University and was graduated from the University of Minnesota. He joined Robertshaw in 1959.

Caloric Appliance Corp. has named **Charles D. Kolkebeck** as material control manager at its Topton manufacturing plant. He had been director of purchases. He has been with Caloric since 1949.

William M. Krupp has been promoted to controller for the Mueller Climatrol division of Worthington Corp. Prior to the appointment, he had been manager of accounting. He joined Mueller in 1957. Another appointment announced by the division is that of **R. W. Weekes** to manager of marketing services. Prior to the consolidation of Mueller Climatrol, Alhambra, Calif., Mr. Weekes had been general manager of the Alhambra operation. **William Thompson** has become plant manager at Alhambra. He was formerly that operation's production manager. He will report to **Curt Hoerig**, vice president-manufacturing, of Mueller Climatrol. **James O. Fichtner** has been appointed chief engineer-heating, and **N. Ed. Hill** has been appointed chief engineer-hydraulics.

John Huber has been appointed assistant director of sales for the heating and air conditioning division of Controls Company of America. He is former manager of the division's Midwestern sales district. Succeeding him in this capacity is **Perry Cremeens**, a former sales engineer for the district. Mr. Huber was a sales manager with Heil Co. before joining Controls in 1957. Mr. Cremeens joined the firm in 1951 as a sales trainee.

Ronald W. Lindsay has become director of marketing for The C. A. Olsen Manufacturing Co. He will be associated with **Edward P. Hayes**, executive vice president of the firm, in marketing planning activities and will assume increasing responsibility for coordination of over-all marketing programing. Prior to joining Olsen, Mr. Lindsay was director of marketing of the plumbing, heating, and air conditioning group of Crane Co.

John A. Curley has been promoted to the new post of national field merchandising manager of the Norge division of Borg-Warner Corp. With the firm since 1955, he has held key positions in Norge sales, including New England district sales manager and eastern divisional sales manager.

Joseph (Ted) Rosenson and **Martin J. Boyle** have become regional sales managers for Bryant Manufacturing Co. Mr. Rosenson will head heating and air conditioning sales efforts in Bryant's southeastern district. Mr. Boyle will be in charge of the eastern district.

Donald C. Power, chairman of the board and chief executive officer of General Telephone and Electronics Corp., and **Frank J. Nunlist**, vice president-operations, of Worthington Corp., have been elected to Worthington's board of directors. The new directors will fill vacancies resulting from the retirements of **Lewis L. Clarke** and **Hunter S. Marston**.

OTHER

Paul B. Greig, Jr., has been appointed division geologist for Texas Gas Exploration Foreign C.A. Before becoming associated with the subsidiary of Texas Gas Exploration Corp., he served for five years with Husky Oil Co. Ltd. as geologist and administrative assistant to the vice president, exploration and production.

Hugh J. Davis has been appointed division landman for the foreign division. Before joining the division he was associated with Devon-Palmer Oils, Ltd. in Canada.

Thomas W. Moore has been named vice president for supply and transportation, a new post, by Humble Oil and Refining Co. He had been a vice president and member of the board of management of the Esso Standard division in New York, N. Y. A graduate of the University of Kentucky, he joined Esso in 1934 as an engineer.

C. C. Eeles has been appointed as director of business promotion for the Columbia Gas System Service Corp. He has succeeded **W. W. Selzer**, who has resigned. Mr. Eeles came to the service corporation from The Ohio Fuel Gas Co., which he joined in 1929 upon graduation from Cornell University. He had been manager of industrial sales for Ohio Fuel Gas since 1956.

Carl John Maki, for many years active in southwestern gas sales and purchase activities, has been named manager of the gas supply department for Texas Eastern Transmission Corp. He will be assisted by **John S. Adams**, who has been promoted to assistant manager of the same department. Mr. Maki has been associated with the petroleum industry since 1936. Mr. Adams joined Texas Eastern in 1949.

ter, N. Y., recently passed away. Mr. Rissler held the position of chemist with the utility at the time of his death.

Mr. Rissler was active in A. G. A. He served as a member of the Chemical and Engineering Committee of the A. G. A. Operating Section and of the Committee for Research Supervising for Particulates Research.



1960

DECEMBER

- 5-9 • A. G. A. Gas Air Conditioning Sales School, Nationwide Inn, Columbus, Ohio.
- 13-14 • National Safety Council's Public Utilities Section, Executive Committee, Statler Hilton Hotel, New York, N. Y.

1961

JANUARY

- 10-12 • American Standards Association Z83 Sectional Committee, A. G. A. Headquarters, New York, N. Y.
- 29-February 2 • National Association of Home Builders, 1961 Convention-Exposition, Convention Center, Chicago, Ill.

FEBRUARY

- 9-11 • A. G. A. Home Service Workshop, Cleveland-Sheraton Hotel, Cleveland, Ohio.
- 13-14 • Second Biennial Mid-Pacific Gas Merchandising Conference, Hawaiian Village Hotel, Honolulu, Hawaii
- 13-16 • American Society of Heating, Refrigerating and Air Conditioning Engineers, Semi-annual Meeting and Exposition, Chicago, Ill.
- 23-24 • A. G. A.-Pacific Coast Gas Association Public Relations Workshop, Benson Hotel, Portland, Ore.

• Pacific Coast Gas Association-Canadian Gas Association-A. G. A. Joint Public Relations Conference, Benson Hotel, Portland, Ore.

MARCH

- 13-17 • National Association of Corrosion Engineers, Annual Conference and Corrosion Show, Hotel Statler, Buffalo, N. Y.
- 16-17 • New England Gas Association, Annual Meeting, Statler Hilton Hotel, Boston, Mass.
- 20-22 • A. G. A. General Management Section, Annual Conference, Francis Marion Hotel, Charleston, S. C.
- 27-28 • Mid-West Gas Association, Annual Meeting and Convention, Sheraton-Fontenelle Hotel, Omaha, Nebr.



Raymond L. Rissler

of Rochester Gas and Electric Corp., Roches-

Personnel service

SERVICES OFFERED

Corrosion Engineer—B.S. degree in Electrical Engineering. Ten years supervisory. Diversified experience with transmission and distribution companies in engineering, design and construction. Resume and references on request. Age 38. 2001.

Construction Engineer-Superintendent—experienced in construction of heavy steel and concrete structures. Marine wharves, steel bridges, pipelines, petroleum storage tanks, pumping stations, and maintenance thereof. Capable of assuming full responsibility from inception to completion of project. Will relocate. 2002.

Sales Management and Marketing—Successful and productive accomplishment for 20 consecutive years in sales executive and service management areas with same leading national GAMA member corporation. Engineering background combined with creative sales-promotion and advertising ability, plus extensive sales management and administrative responsibilities provides exceptional experience background. Currently marketing consultant. Seeking gas industry reassociation offering challenging opportunities and growth potential. Available as consultant during proof-demonstration period or as full-time staff member. Complete resume on request. Salary open. Will relocate. 2003.

Management—recent vice president and general manager of natural gas utility. Twenty-four years in management, public relations, engineering, distribution, transmission, sales and service. Living in Mid-west. Married, three children. 2004.

Supervisory and Management—experience local level. Customer's accounting, auditing and all related duties. Twenty years' experience, early forties. Detailed resume upon request. 2005.

Administrator—gas utility executive, age 55, in

good health and 25 years' experience in operations, engineering, labor relations and management in gas distribution companies desires position with medium size utility. Location and salary negotiable. Available on short notice. 2006.

Treasurer-Controller—of small distribution company desires change to challenging position in active company with growth problems. CPA, age 35, with eleven years of big-company background in public accounting, production, transmission, storage and distribution. Heavy experience in securities issuance and public relations. \$12,000 to \$15,000. 2007.

Staff Assistant-Personnel or Operations—ten years' gas and electric utility experience. Heavy in personnel administration, also interested in distribution, or staff assistant to management. College graduate. BS industrial economics, minors EE and GE. Age 38. Will relocate. Salary open. Complete resume on request. 2008.

POSITIONS OPEN

Economics or Rate Engineer—excellent opportunity to work with vice president of medium-sized public utilities consulting engineering firm (NYC) which is expanding steadily. Must be interested in economics and finance, and adaptable to learn all phases of the public utility business including distribution system and transmission design, sales, finance, supervision of construction, rate making, economics, special operating problems, etc. Should have from three to eight years operating experience with a public utility, or equivalent experience in consulting engineering. Pension and profit sharing plans. Send resume and salary requirements. 0956.

Supervisor-Fluid Flow Research—to provide advice and guidance on problems and applica-

tions to the operating divisions, and advise and make recommendations on plans and policies for utilization of fluid flow phenomena throughout the corporation. Salary \$14,500. Age, under 45. 0957.

Sales Manager—for electric and gas water heaters with one of the large manufacturers. Salary \$15,000 to \$20,000. Age 35 to 45. 0958.

Gas Distribution Superintendent—for 30,000 meter industrial area. Degree and some engineering experience are desirable. Strong supervisory ability necessary. Location, midwest. All replies will be held in confidence. 0959.

Division Manager—New natural gas pipeline and distribution company seeks a division manager to handle all phases of operations for about 300 miles of pipeline and for distribution systems in 12 cities and towns. Development of sales and public relations important. Must have gas distribution utility experience. Send resume. 0960.

Sales Representative—excellent opportunity for aggressive sales organization with background in gas-fired hydronic heating and cooling equipment now calling on jobbers, contractors, architects, builders and utilities. Able to organize sales meetings and render technical field service. Territories open in Richmond, Cleveland, Birmingham, Memphis and Louisville. Applications held in strict confidence. 0961.

Instrument Application Engineer—major New England instrument manufacturer expanding activity in gas distribution and transmission industry has opening for graduate electrical or mechanical engineer in application engineering department. Several years' experience in gas industry desired. Should have interest in working with our field engineers and customers on telemetering and other instrument problems. Age 24-36. Located at main plant. Some traveling. Send resume. 0962.

Bridgforth joins Bryant



G. L. Bridgforth

G. LEWIS BRIDGFORTH has been appointed as product sales manager, unit and duct heaters, of Bryant Manufacturing Co., Indianapolis, Ind.

Mr. Bridgforth has joined Bryant after nine years' experience with the Minneapolis-Honeywell Regulator Company. Since 1956 he had been their Staunton,

Va., district representative. Prior to that he held sales positions in the company's offices in Richmond and Roanoke, Va.

Sachs joins Zinder staff

THE ASSOCIATION of Milton S. Sachs with the consulting staff of H. Zinder and Associates has been announced by H. Zinder, president.

Prior to joining the company Mr. Sachs retired after 30 years of government service. His most recent post was that of chief hydrologist with the Bonneville Power Administration. Since last year he has been on loan from Bonneville to the United Nations Special Fund as a consultant on the Awash River development in Ethiopia.

His earlier experience includes engineering work with the Interstate Commerce Commission.

Whirlpool elevates two

THE BOARD of directors of Whirlpool Corporation, St. Joseph, Mich., has announced new titles and responsibilities for Mason Smith and Walter A. Holt. Mr. Smith, former vice president and treasurer, has become financial vice president; Mr. Holt, former assistant treasurer, has become treasurer.

A vice president of Whirlpool since 1954, Mr. Smith is chairman of the board of the company's financial subsidiary, Appliance Buyers Credit Corporation, and a trustee of the savings and profit sharing trust for employees.

Mr. Holt became assistant treasurer of Whirlpool in 1955. He is a former national director of the National Association of Accountants.

Airtemp names Kirby

THOMAS W. KIRBY has been appointed as vice president-marketing for the Airtemp division of Chrysler Corporation. The division is located in Dayton, Ohio.

Mr. Kirby will report directly to the president. His new position replaces the former position of vice president of sales and encompasses the complete marketing function of the division.

Mr. Kirby will place particular emphasis on the expansion and strengthening of Airtemp's nation-wide dealer and distributor organization. He will also concentrate on the development of new consumer-oriented merchandising programs.

Piedmont changes announced

BUELL G. DUNCAN, president and general manager of Piedmont Natural Gas Co., Charlotte, N. C., has announced that in order to more evenly distribute responsibility for the firm's promotional and sales programs, the following administrative changes have been made.

J. J. Sheehan, who had served as vice president-sales since joining the company in 1951, will supervise programs in the areas of publicity, promotions, and advertising and will handle special assignments.

J. Z. Watkins, sales manager, has assumed the responsibility of all residential and commercial sales and home service activities, including the training or supervision of sales personnel, sales of appliances, new business.

Laing elected treasurer

JAMES A. LAING, secretary of Natural Gas Pipeline Company of America, Chicago, Ill., has been elected to the additional post of treasurer. Natural Gas Pipeline is a subsidiary of The Peoples Gas Light and Coke Company.

Mr. Laing became associated with Peoples Gas in 1944. He joined Natural Gas Pipeline in 1953 and became secretary of that company in 1957. As treasurer he has succeeded F. K. Macdonald, who has retired.

George Bem, assistant treasurer, has been elected to the additional post of assistant secretary. Harvey S. Cain and Nathan L. McClure have been named assistant controllers.

A. G. A. advisory council

E. J. BOOTHBY.....Washington, D. C.
 F. D. CAMPBELL.....Cambridge, Mass.
 O. S. CARPENTER.....Houston, Texas
 MARVIN CHANDLER.....Aurora, Ill.
 C. E. CLOUD.....Little Rock, Ark.
 SHELDON COLEMAN.....Wichita, Kan.
 C. V. COONS.....New York, N. Y.
 STUART COOPER.....Wilmington, Del.
 R. E. CRAWFORD.....Minneapolis, Minn.
 H. WILLIAM DOERING.....Springfield, Mass.
 C. H. GUEFFROY.....Portland, Ore.
 L. C. HARVEY.....Syracuse, N. Y.
 H. HANSELL HILLIER.....Savannah, Ga.
 ROBERT A. HORNBY.....San Francisco, Calif.
 J. T. INNIS.....Omaha, Nebr.
 F. A. KAISER.....Detroit, Mich.
 JULIUS KLEIN.....Jenkintown, Pa.
 D. C. LUCE.....Newark, N. J.
 W. T. LUCKING.....Phoenix, Ariz.
 W. G. MAGUIRE.....New York, N. Y.
 C. L. MAY.....Dallas, Texas
 V. T. MILES.....Mineola, N. Y.
 D. H. MITCHELL.....Hammond, Ind.
 W. E. MUELLER.....Colorado Springs, Colo.
 S. H. NICHOLS.....New York, N. Y.
 R. W. OTTO.....St. Louis, Mo.
 E. A. NORMAN.....Columbus, Ohio
 J. C. PETERSON.....Pittsburgh, Pa.
 C. P. RATHER.....Birmingham, Ala.
 W. F. ROCKWELL, JR.....Pittsburgh, Pa.
 E. H. TOLLEFSON.....New York, N. Y.
 G. F. WATTERS.....Syracuse, N. Y.
 J. THEODORE WOLFE.....Baltimore, Md.
 D. K. YORATH.....Edmonton, Alta., Canada

PAR COMMITTEE

Chairman—Richard A. Puryear, Alabama Gas Corp., Birmingham, Ala.

General Promotional Planning Committee
 Chairman—Frank M. Foster, Southern California Gas Co., Los Angeles, Calif.

General Research Planning Committee
 Chairman—Fred W. Batten, The Columbia Gas System Inc., New York, N. Y.

General Public Information Planning Committee
 Chairman—R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass.

FINANCE COMMITTEE

Chairman—James Comerford, Consolidated Natural Gas Co., New York, N. Y.

LABORATORIES MANAGING COMMITTEE

Chairman—William J. Harvey, Public Service Electric and Gas Co., Newark, N. J.

APPROVAL REQUIREMENTS COMMITTEE

Chairman—R. I. Snyder, Southern California Gas Co., Los Angeles, Calif.

Associated organizations

CANADIAN GAS ASSOCIATION

Pres.—R. C. McPherson, Canadian Western Natural Gas Co., Ltd., Calgary, Alberta.

Man. Dir.—W. H. Dalton, 2532 Yonge St., Toronto, Ontario.

GAS APPLIANCE MANUFACTURERS ASSOCIATION

Pres.—Wendell C. Davis, Cribben and Sexton Co., Chicago, Ill.

Man. Dir.—Harold Massey, 60 East 42nd St., New York, N. Y.

FLORIDA NATURAL GAS ASSOCIATION

Pres.—John T. Bills, Peoples Gas System of Florida, North Miami, Fla.

Sec.-Tr.—H. H. Phipps, The Houston Corp., St. Petersburg, Fla.

INDIANA GAS ASSOCIATION

Pres.—Carl D. Rees, Northern Indiana Public Service Co., Hammond, Ind.

Sec.-Tr.—R. A. Steele, Citizens Gas & Coke Utility, 2020 N. Meridian St., Indianapolis, Ind.

MARYLAND-DISTRICT OF COLUMBIA UTILITIES ASSOCIATION

Pres.—H. Holmes Vogel, Chesapeake & Potomac Telephone Co., Washington, D. C.

Sec.—Robert C. Carder, 55 East Washington St., Hagerstown, Md.

MICHIGAN GAS ASSOCIATION

Pres.—A. V. Brashear, Michigan Consolidated Gas Co., Detroit, Mich.

Sec.-Tr.—M. G. Kendrick, Michigan Consolidated Gas Co., Detroit, Mich.

MID-WEST GAS ASSOCIATION

Pres.—J. S. Mayer, Northern States Power Co., Minneapolis, Minn.

Sec.-Tr.—James J. Finnegan, 1163 Northwestern Bank Bldg., Minneapolis, Minn.

GAS AND PETROLEUM ASSOCIATION OF ONTARIO

Pres.—J. W. Ostler, Canadian Meter Co., Ltd., Milton, Ontario.

Sec. and Asst. Tr.—H. B. Fry, United Gas Ltd., Hamilton, Ontario.

NEW ENGLAND GAS ASSOCIATION

Pres.—Gilbert J. Williams, The Connecticut Light & Power Co., Berlin, Conn.

Man. Dir.—Clark Belden, 10 Newbury St., Boston, Mass.

NEW JERSEY GAS ASSOCIATION

Pres.—W. Daniel Williams, New Jersey Natural Gas Co., Asbury Park, N. J.

Sec.-Tr.—Ralph E. Martin, New Jersey Natural Gas Co., Asbury Park, N. J.

PACIFIC COAST GAS ASSOCIATION

Pres.—H. G. Dillin, San Diego Gas & Electric Co., San Diego, Calif.

Man. Dir.—Robert D. Scott, 870 Market St., San Francisco, Calif.

PENNSYLVANIA GAS ASSOCIATION

Pres.—E. H. Smoker, The United Gas Improvement Co., Philadelphia, Pa.

Sec.—H. F. Dimmler, Philadelphia Electric Co., Philadelphia, Pa.

PENNSYLVANIA NATURAL GAS MEN'S ASSOCIATION

Pres.—James E. Coleman, The Manufacturers Light & Heat Co., Pittsburgh, Pa.

Sec.-Tr.—P. L. Kesel, Carnegie Natural Gas Co., Pittsburgh, Pa.

ROCKY MOUNTAIN GAS ASSOCIATION

Pres.—Glenn Waddell, Independent Gas Service, Inc., Denver, Colo.

Sec.-Tr.—H. P. Risley, Public Service Company of Colorado, Denver, Colo.

Field Sec.—Roy G. Munroe, Rm. 16, 1300 Glenarm St., Denver, Colo.

SOUTHEASTERN GAS ASSOCIATION

Pres.—T. W. Yarbrough, Piedmont Natural Gas Co., Inc., Greensboro, N. C.

Sec.-Tr.—Edward W. Ruggles, North Carolina State College, Raleigh, N. C.

SOUTHERN GAS ASSOCIATION

Pres.—James A. Wilson, United Gas Corp., Houston, Texas.

Man. Dir.—Robert R. Suttle, 1524 Life of America Building, Dallas, Texas.

WISCONSIN UTILITIES ASSOCIATION

Pres.—Harry I. Miller, Wisconsin Public Service Corp., Milwaukee, Wis.

Man. Dir.—Dale F. Hansman, Empire Building, Suite 522, 710 North Plankinton Ave., Milwaukee, Wis.

INTERNATIONAL GAS UNION

Pres.—Bengt M. Nilsson, Pres. The Swedish Gas Assn., Stockholm, Sweden.

Gen. Sec.—R. H. Touwaide, 4 Ave. Palmerston, Brussels 4, Belgium.

American Gas Association

HEADQUARTERS 420 LEXINGTON AVE., NEW YORK 17, N. Y.
MURRAY HILL 3-8200

A. G. A. LABORATORIES • 1000 E. 62nd Street, Cleveland 3, Ohio • 1425 Grande Vista Avenue, Los Angeles, Calif.
ENGLISH 1-0475 • ANGELES 1-8181

WASHINGTON OFFICE • 1725 Eye St. N.W., Washington 4, D. C.
FEDERAL 7-6630

Officers

*President.....LESTER T. POTTER.....Inne Star Gas Co., Dallas, Texas
*First Vice-President.....EDWARD H. SHOOKER.....The United Gas Improvement Co., Philadelphia, Pa.
*Second Vice-President.....JOHN E. HEYKE.....The Brooklyn Union Gas Co., Brooklyn, N. Y.
*Treasurer.....CHARLES H. MANN.....The Columbia Gas System, Inc., New York, N. Y.
Assistant Treasurer.....LAWRENCE YOSE.....Columbia Gas System Service Corp., New York, N. Y.
Assistant Treasurer.....WILLIAM I. THOMPSON.....Columbia Gas System Service Corp., New York, N. Y.
*Managing Director.....CHESTER S. STACKPOLE.....American Gas Association, New York, N. Y.
Secretary.....JAC A. CUSHMAN.....American Gas Association, New York, N. Y.

Directors

*Immediate Past President.....WALTER H. LIGON.....Nashville Gas Co., Nashville, Tenn.
*FRED L. SHOOK.....Chicago, Ill.
*M. D. KORMAN.....Pittsburgh, Pa.
*WENDELL C. DAVIS.....Chicago, Ill.
*H. KEND DERRICK.....St. Louis, Mo.
*BUELL D. DUNCAN.....Charlotte, N. C.
*W. M. ELDER.....Owensboro, Ky.
*ROBERT E. GINNA.....Rochester, N. Y.
*ELISHA GRAY, JR.....St. Joseph, Mo.
*WILLIAM G. HAMILTON, JR.....Philadelphia, Pa.
*WILLIAM J. HARVEY.....Newark, N. J.
*HALL M. HENRY.....Cambridge, Mass.
*A. W. JOHNSTON.....Boston, Mass.
*OAKAM L. JONES.....Toronto, Canada
*BOY E. JONES.....Washington, D. C.
*OTTO W. MANZ, JR.....New York, N. Y.
*RALPH T. McEVINNEY.....Detroit, Mich.
*E. CENDE McGRAY.....Houston, Texas
*GERALD T. MULLIN.....Minneapolis, Minn.
*S. LYONS MEYER.....Indianapolis, Ind.
*DALE E. OTTO.....Chicago, Ill.
*D. PARKER.....St. Louis, Mo.
*JOHN C. PARROTT.....Rochester, N. Y.
*JOHN W. PARTRIDGE.....Cleveland, W. Va.
*R. T. PERSON.....Denver, Colo.
*A. M. REZENTHAUM.....New York, N. Y.
*CHARLES R. STURKEY.....Seattle, Wash.
*M. E. STYVENLAND.....San Francisco, Calif.
*GUY W. WADSWORTH, JR.....Los Angeles, Calif.
*S. D. WINTERMAN.....Memphis, Tenn.
*JOHN M. WIMBERLY.....Portland, Ore.

Section Chairmen

Accounting Section.....REINHOLD H. JOHNSON.....The Brooklyn Union Gas Co., Brooklyn, N. Y.
General Management Section.....GORDON C. GRIEWOLD.....The Brooklyn Union Gas Co., Brooklyn, N. Y.
Industrial and Commercial Gas Section.....L. J. FRETWELL.....Oklahoma National Gas Co., Tulsa, Okla.
Operating Section.....BERMAN L. FRUCHTENICHT.....Consumers Power Co., Jackson, Miss.
Residential Gas Section.....J. J. McFARLIN.....Laclede Gas Co., St. Louis, Mo.

Association Staff

Managing Director.....CHESTER S. STACKPOLE
Assistant Managing Director.....JOHN W. WEST, JR.
Assistant to the Managing Director.....HAROLD S. WALGER, JR.
Director, A. G. A. Laboratories.....FRANK E. HODGSON
Manager, Public Cost Laboratory.....W. H. YOGAN
Secretary and Committee Manager.....JAC A. CUSHMAN
Librarian.....EDITH W. FINCH
Controller.....ROBERT J. CLITTING
Secretary, Accounting Section.....THOMAS J. SHAMLEY
Secretary, General Management Section.....VAUGHAN O'BRIEN
Safety Manager.....RAUEL N. PAPEN
Secretary, Industrial and Commercial Section.....BALSERM H. MURRAY
Secretary, Operating Section.....J. STANFORD SETCHEL
Home Service Counselor.....ELLEN BRIDGES
Director, Bureau of Statistics.....THEODORE L. GRADIN
Director, Utilization Service.....C. GEORGE STOKES
*EXECUTIVE COMMITTEE OF THE BOARD OF DIRECTORS:
Director of PAB Men.....S. F. WILSON
Director, Promotion and Advertising and Secretary, Residential Section.....MORVAE D. JENNINGS
Advertising Manager.....KENNETH J. MURDOON
Promotion Manager.....LEONARD M. HAMME
Manager, Home Bureau.....GERALD F. MULLIN
Manager, Commercial Promotion.....PATRICK J. WHITE
Director, Research.....THOMAS LEE ROBERT
Research Consultant.....DR. H. E. CHANEY
Director, Public Information.....JAMES H. SEAN
Southern Regional Mgr., Dallas, Texas.....LUDWIG W. KROHN
Midwest Regional Mgr., Grand Rapids, Mich.SALE HARRIS
Southeast Regional Mgr., Forest Hills, N. Y.ROBERT W. LAUD
Mgr., Hollywood Bureau.....W. H. McWHIRTER
Manager, Washington Office.....OTTO W. MANZ
Utilization Engineer, Washington.....HOWARD ARBON

